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OBSTRUCTIONS OF THE COMMON BILE DUCT*

BY

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Obstructions of the common bile duct may be partial or complete: in either case there is interference with the passage of bile, and therefore demonstrable jaundice. On the other hand jaundice, which has all the signs of the obstructive type, is not necessarily due to common duct obstruction. Complete or nearly complete obstruction is clearly revealed by clinical evidence which is too well known to need repetition here; partial obstruction, however, may be so slight that none of the ordinary clinical appearances are present; it is, in fact, latent—that is, bilirubin is in excess in the plasma, but has not reached the point at which it causes visible jaundice or exceeded the threshold of the kidneys. Fortunately in the van den Bergh test we have the means of detecting any degree of bilirubinaemia, and also whether it has arisen as a result of obstruction or not; though it cannot tell us with certainty whether the obstruction is intrahepatic or extrahepatic.

Causes of Obstruction of the Common Duct

The causes of obstruction are numerous, and many of them rare. I do not propose to enumerate them all. Those with which we have commonly to deal are: (1) stone and its complications, whether pathological or the result of surgical treatment; (2) pressure on the duct by pancreatic lesions, malignant or simple. I am prevented by lack of space from doing more than mention a presumed and possibly not uncommon cause due to spasm of the sphincter of Oddi. It is an interesting problem, and one on which a good deal of research is being carried out.

Diagnosis

The problem is usually one of determining the cause of jaundice of the obstructive type. In the main the difficulty is not great, the chief characteristics being:

Stone	Carcinoma of Pancreas	Chronic Pancreatitis
Painful Intermittent and varying	Painless Persistent and progressive	Usually some pain Variable
Short duration Not deep Often infection (intermittent hepatic fever)	Long duration Deep Aseptic	Long duration Fairly deep May be infection
Gall-bladder not palpable	Gall-bladder usually palpable	Gall-bladder often palpable
Wasting variable (may be rapid)	Rapid wasting	Some wasting

With these features, the history, and a positive prompt van den Bergh reaction there is usually no difficulty in deciding whether a stone is the obstructing agent or not; but it is often impossible even at operation to differentiate between malignant and simple lesions of the pancreas.

Unusual cases occur not infrequently, and the difficulties may then be considerable. For example, in calculous obstruction there may be complete absence of pain, and jaundice, which as a rule is of short duration and not intense, may be deep and lasting. Carcinoma of the ampulla of Vater may ulcerate and permit bile to flow again after the customary deep jaundice and be associated with infection. Again, in the calculous cases sepsis varies, sometimes dominating the picture and at other times being altogether absent. Indeed, where there is infection without jaundice there is a risk of overlooking the biliary system as a possible source of the trouble.

Moreover, the difficulties in diagnosis arise not entirely in sorting out one cause of obstructive jaundice from another, but also in determining whether the jaundice is of intrahepatic or extrahepatic origin. Here are two such cases:

Case 1.—A man, aged 45, was referred to me by a consulting physician for carcinoma of the head of the pancreas. He had had deepening jaundice, painless, with all the criteria of the obstructive type (including a prompt direct strongly positive van den Bergh reaction) for three months, and rapid loss of weight. The liver was enlarged, the gall-bladder not definitely palpable. The urine was normal except for the presence of bile. Tetraiodophenolphthalein 2.5 grammes injected intravenously showed a 50 per cent. retention after half an hour. At operation no obstruction was found; the common duct was explored and drained. He died nine days later. At necropsy the pancreas was normal; the liver weighed 47 oz., and the cut section showed bile-stained swollen short bands of liver cells and areas suggesting recent granulations; microscopical sections revealed subacute yellow atrophy.

Case 2.—A woman aged 57, with a long history of flatulent indigestion, became jaundiced seven weeks before admission after an attack of pain in the right side and going through to the back. It was rather severe, but not of a colicky nature. The jaundice gradually deepened and was accompanied by itching and vomiting. It had all the characteristics of obstructive jaundice, with a prompt positive direct van den Bergh reaction, though the response had a biphasic element to some extent. Except for the presence of bile her urine was normal. It was thought she had a stone in her common duct, but at operation the duct was not dilated, the pancreas was normal, and there was no evidence of any obstruction of the duct at all. The liver was enlarged and cirrhotic, with a nodular surface. She gradually recovered and the jaundice slowly disappeared. It was not thought advisable to remove a section of liver, but I think there is no doubt this was a case of hepatitis with intrahepatic obstruction.

Mechanical obstruction and cholangitis can produce similar liver changes, as these two cases show:

Case 3.—A woman, aged 63, had had attacks of biliary colic off and on for three years, with jaundice in the last attack; this had steadily increased and become very deep. At opera-

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tion the gall-bladder, which contained several stones, was drained, and also the common duct, which held a large stone and much debris. She died three days later in a comatose condition. Sections of the liver showed atrophy and advanced necrosis with collections of polymorphs.

Case 4.—A woman, aged 59, had had during a long period many attacks of cholecystitis with tenderness over the gall-bladder accompanied by shivering and jaundice. She was admitted in a critical condition, and died next day without operation. The post-mortem examination revealed a slightly enlarged gall-bladder containing mucus and three faceted stones, one of which was impacted in the neck. There was no stone in the dilated common duct, but some muddy bile; the pancreas was distinctly fibrotic. The liver showed a thickened capsule with grossly distorted surface, and on section there was extensive fibrosis enclosing small islets of intensely bile-stained fat with some liver tissue surviving in widely separated areas.

Cases like the first two do not often occur in one's practice, but when they do they present a major problem in diagnosis. Distinctive urinary changes are frequently absent, and one has to rely on less specific evidence. For example, if a patient develops jaundice without pain the presence of bile in the duodenal contents suggests that the condition is one of intrahepatic origin, and jaundice so arising is usually distinctly yellow, and generally unaccompanied by much itching, whereas if the condition is an extrahepatic one jaundice is of a dark greenish tinge with marked itching. My experience of intravenous injection of tetraiodophenolphthalein, though limited, leads me to think that marked retention of the dye is more likely in the case which does not owe its liver changes to extrahepatic obstruction. This test, however, is not without danger.

It seems inevitable, then, that if one makes it a rule to advise operation in all cases of suspected obstructive jaundice (as I think one should) an unnecessary operation occasionally will be performed; but against this some patients will be rescued by finding a stone in a supposed case of malignant obstruction. Even in the case which seems undoubtedly to be malignant a palliative operation can be done which will make the patient reasonably comfortable and prolong life a little, and occasionally indefinitely, since the assumed malignant disease may after all be chronic pancreatitis. In a series of 100 cases of obstruction of the common duct by pancreatic lesions the chances are that 20 per cent. will be simple, and in many of these it is only the subsequent long survival of the patient that will establish the diagnosis.

Effects of Obstruction on the Common Duct

The extrahepatic and intrahepatic ducts are dilated. When obstruction is due to pressure on the duct from without it has a bluish colour and as a rule contains dark inspissated bile because the gall-bladder is usually normal and carries on with its concentrating function. Where stone is the cause infection in the duct is common and the gall-bladder is more or less functionless; the bile is thin and yellow, or muddy with possibly a faecal odour; and the wall of the duct is thick and has a pinkish-yellow hue.

In about 5 per cent. of cases of common duct obstruction the duct is filled with "white bile"; experimentally white bile occurs only in those cases where the gall-bladder has been disconnected from the obstructed duct; clinically it is most often seen when obstruction is due to stone and where the gall-bladder has been more or less destroyed by inflammation. The ducts are filled with a mucoid secretion derived from their walls. There is still some doubt about the explanation of this state of affairs, but it indicates very serious hepatic injury, and is therefore a signal to the surgeon for the least operative intervention compatible with efficiency at the time.

Of great practical importance from the point of view of the patient's safety are the hepatic changes resulting from obstruction; some degree of injury is always present, varying from mild central necrosis to acute atrophy, and slight periportal fibrosis to definite cirrhosis. It is not known why one patient should present minimal changes and another gross damage, nor have we the means of accurate determination as we have in the case of the kidney. The best guide, I think, is the bilirubin content of the serum. In many respects bilirubinaemia and high blood urea have a similar meaning as regards the respective organs. Both result from back pressure and functional insufficiency; neither in itself is harmful in the circulation, and in both cases the variations in the blood are detectable by reasonably easy and accurate tests. In the case of the kidney, however, we have other tests by which the significance of blood-urea readings can be assessed, whereas for the liver there are no comparable tests either in reliability or in consistency. Nevertheless the behaviour of the serum bilirubin curve does give considerable information. For example, we know that obstructive jaundice is associated with a tendency to bleed and with a prolonged coagulation time (it may be twenty minutes or more, compared with the normal four minutes or so); these are undoubtedly due to hepatic injury, and not to the mere presence of bilirubin in the blood, though roughly they run parallel; yet we know that this haemorrhagic tendency may occur in cases with little or no jaundice.

Bilirubin accumulates in the plasma even if the obstruction persists for months; bile salts, on the other hand, soon disappear from both the blood and the urine; the cholesterol content of the plasma rises by retention; the blood urea mounts and may be followed by casts and albuminuria and vomiting of altered blood. These indicate renal injury, and it is a practical point of the highest importance to keep in mind that the convoluted tubules of the kidney seem to be particularly vulnerable to something appearing in the blood as a result of hepatic injury.

Ascites and splenic enlargement may complicate common-duct obstruction if hepatic fibrosis is extensive, and a stone in the ampulla may cause dilatation of the pancreatic ducts with atrophy of the secretory cells from interlobular fibrosis: interacinar fibrosis is rare and thus true diabetes uncommon, though glycosuria is not infrequently seen with stone obstructing the common duct.

In addition to the plasma alterations already noted there is evidence furnished from the Mayo Clinic of changes in the haemoglobin of jaundiced patients. True anaemia may occur, but there may be also anoxaemia of the stagnant type—that is to say, the oxygen-carrying capacity of the haemoglobin is diminished. To some extent this may account for the central necrosis in the hepatic lobules, but anoxaemia has a profound effect on the tissue metabolism throughout the body. With this impoverishment in cellular environment one would expect the more elaborate processes to be carried on with greater difficulty than the simpler, which may account for the benefit derived from glucose therapy. It is generally agreed that a liver well stored with glycogen is less vulnerable than one not so provided; this is no doubt true, but in the sense that it shows there is more sugar in the body than is required by the tissues generally. If sugar is being provided in sufficient quantity parenterally, for example, over a period, I do not think it is

necessary that the liver should hold any excess as glycogen; at any rate that seems to be the evidence furnished by examination of liver sections which I have taken at operation.

Factors Affecting Mortality

1. WHEN TO OPERATE

The longer the disturbances initiated by common-duct obstruction last the more they pass from physiological dysfunction to structural and irreparable damage. Delay in treatment is therefore to be avoided, and as the obstruction is mechanical it can only be dealt with by surgery. Waiting a week or two is permissible; first, because if the obstruction is due to stone spontaneous relief will generally be observed in this time and the need for immediate surgery passes; and, secondly, because, whatever the cause of the obstruction, this period gives opportunity for pre-operative preparation, which I regard as imperative. It is in my opinion as essential a part of the treament as is iodine, etc., in cases of toxic goitre.

2. PRE-OPERATIVE TREATMENT

So far as we know at present the chief needs of the patient are water, salt, sugar, and blood in order as far as possible to rectify disturbances produced by the disease and to prevent aggravation of them, which the impending operation will certainly do to some extent.

Water, Salt, and Sugar.—These are given in the form of normal saline or Ringer-Locke's solution with 5 to 10 per cent. glucose. Water is not retained in the body without an adequate salt concentration. Most patients take sparingly by mouth and often vomit, and probably under the influence of general toxic depression at best absorb slowly from the intestinal tract; the fluid therefore has usually to be given parenterally, and of these methods the continuous intravenous drip is certainly the best; it corrects dehydration, provides calories, and assists the functional capacity of the kidneys. Fluid can be administered in this way for several days, but intake and output must be closely watched, since there is no protein intake and water imbalance may arise. The only way to give intravenous protein is by blood transfusion.

Blood Transfusion.—Among the benefits conferred by blood are: (1) a rise in peripheral blood pressure—the proteins it contains tend to keep fluid in the vessels; (2) it diminishes the risk of post-operative bleeding; (3) in some cases it replaces blood which has been lost; (4) it supplies haemoglobin, which corrects in some degree anoxaemia and so improves metabolism generally. It is usual to give one or more transfusions at intervals, but probably a better way is to administer by continuous drip, the blood being oxygenated in its container.

Calcium.—It is customary to give calcium, usually as the chloride, intravenously, and I think it should be given; but whether it affects the tendency to bleed (which is the accepted reason for its introduction) directly I am not sure; my experience with its use in toxic jaundice suggests that it exercises its beneficial effect on the liver primarily, and experimental evidence points the same way, as it favours recovery of the liver poisoned by carbon tetrachloride.

3. OPERATIVE TREATMENT

I do not propose to do more under this heading than give a few principles:

(*a*) *Do the Least that is Necessary.*—Skilful judgement is very important here. In some cases the common duct should only be drained, the obstructive agent being left for another time. In most cases the full operation can be completed, though in deeply jaundiced patients the gall-bladder should not be removed. The duct should be definitely cleared and the ampulla dilated with probes. An anastomosis between the dilated gall-bladder and stomach or duodenum relieves the pressure when due to pancreatic lesions. Should the gall-bladder have been removed at some previous operation the anastomosis would have to be done by using the hepatic duct. There is some danger, in suddenly relieving back pressure on the liver, from flooding the circulation with pent-up hepatic substances, or, more probably, by increasing for a time intrahepatic pressure owing to sudden congestion, as may occur after the relief of intracranial pressure or obstruction to renal secretion. Such patients may die two or three days after operation with hyperpyrexia; these are true liver deaths. Gradual decompression according to the method used in enlarged prostates is not possible here; the nearest approach is to aspirate the duct slowly before putting in a tube. Fortunately such cases are not often encountered. The more usual mode of death (often also called liver death) is seven or eight days after operation from a uraemic condition, and this can be prevented by adequate preparation.

(*b*) *Anaesthesia.*—I feel sure that spinal anaesthesia is of great value in biliary surgery, especially in the more serious cases. It takes a little courage to use it in these circumstances, since some fall of blood pressure is frequently seen, but with the use of icoral just before giving the spinal anaesthetic, and administering throughout the operation sufficient gas and oxygen to make the patient breathe more deeply, the fall is not serious. Otherwise the advantages are considerable: it makes for more gentle and quicker operating because of the complete relaxation, and so far as we know there is no toxic effect on the liver and kidneys, which cannot be said of ether, and these organs may be already working near the limit of their capacity.

(*c*) When no obstructing agent can be felt in the common duct it should nevertheless be opened and explored if: (i) dilated; (ii) altered in colour from a bluish hue to pinkish yellow; (iii) thickened; (iv) the pancreas is hardened or gritty.

(*d*) The stones removed from the common duct should be examined, as their composition may indicate their place of origin. Pure pigment stones form in the common duct, and so may recur after cholecystectomy has been done and the common duct cleared. Stones containing cholesterol alone or in combination with calcium are formed in the gall-bladder. Pigment stones may form in the liver as the result of excessive blood destruction; they are small, black, irregular, and friable. After dealing with the local condition splenectomy may be necessary to prevent recurrence. I remember a man who had four operations for biliary colic with jaundice. On each occasion a pigment stone (or stones) was found in the common duct and removed; the gall-bladder was also removed at the first operation. It was only at the fourth attempt that the spleen was found to be twice its normal size and was taken away. That was fifteen years ago, and there has been no recurrence since.

4. STONE IN THE HEPATIC DUCT

Obstruction of the hepatic ducts is not germane to this paper, but in so far as a stone which has caused obstruction of the common duct may be displaced into the hepatic duct, it is necessary to keep this in mind. The common duct must be cleared, but in addition one must

make sure that the hepatic ducts also are explored, otherwise there may be a recurrence of common-duct obstruction later; this I believe to be a not uncommon cause of such recurrence.

5. POST-OPERATIVE TREATMENT

The pre-operative technique should be carried on during and after operation. In addition 10 per cent. CO_2 in oxygen should be given until the patient takes four or five deep breaths, and repeated three or four times an hour during the first twenty-four hours or so. I think there is no doubt this lessens the incidence of post-operative atelectasis. Flatulence and vomiting are very seldom post-operative features when spinal anaesthesia has been used.

Conclusion

A collective investigation on stone in the common duct by the Association of Surgeons of Great Britain and Ireland in 1932 showed a mortality of 14.65 per cent. in 621 cases. The period to which these figures apply was for the most part before the importance of pre-operative preparation was fully realized. Since that date my figures show a mortality of 4.7 per cent. in eighty-four cases of stone in the common duct, and practically all these patients received the most careful preparation.

I feel sure the biochemical considerations involved in this preparation are of the greatest importance, and indicate that in order to make patients safe the surgeon must be in possession of knowledge which carries him far beyond the limits of operative technique and skill, however excellent these may be.

NUTRITIONAL NEEDS IN PREGNANCY*

BY

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Last year, at the inaugural meeting of the Section of Nutrition in Oxford, I ventured to predict that the day was not far distant when, instead of one morning being devoted to its work it would rank with the Section of Medicine as a three-day fixture. To-day my prediction is two-thirds of the way towards fulfilment. And it is perhaps fitting that the Section of Obstetrics and Gynaecology should be the first to ally itself with that of Nutrition. By this alliance and by the application of the principles of nutrition to the mothers of our race and to their children we begin at the beginning to lay the foundations of a more healthful existence for our people—a finer structure of national health. For, as Carrell has recently reminded us, "nutrition is synonymous with existence"; synonymous, that is to say, with the act of living, with the exercise of the vital functions. To this I would add that faulty nutrition is synonymous with faulty existence, with the faulty exercise of the vital functions.

For the student of nutrition there is no more enlightening experience than to observe the behaviour of cells under cultural conditions *in vitro*. Soon he perceives that their growth, their reproduction, their structure, and their functions depend not only on the composition of the fluid medium in which they are immersed but on the removal from it of the waste products of their activities. So it is with the human body: that vast aggregation of cells, living, moving, and having their being within the closed circuit of the blood stream. For them the continual purification of the fluid medium in which they live is as necessary to their well-being as its continual enrichment with essential nutrients. It is to these two ends that the processes involved in the function of nutrition are directed and co-ordinated. Inspiration, mastication, deglutition, digestion, absorption, and circulation: these are the supply services. Exhalation, perspiration, urinary excretion, and defaecation: these are the sanitary services. The central act—assimilation—in the series of processes involved in nutrition is a function of living matter, dependent on the efficiency of the supply services on the one hand and on that of the sanitary services on the other. To the cell belongs the task of nourishing itself; to us, as physicians, belongs the task of enabling it to do so by our supervision of the efficiency of these two services.

Nutrition, then, is the sum of the acts or processes by which the structure and functions of all organs and parts of the body—including, of course, those that subserve the function of reproduction—are established and maintained. It is, in short, that function of the body by which health is maintained: health, which implies the ability to produce and rear offspring fitted to live and efficiently to perform the functions of their species.

Continued Efficiency of the Function of Nutrition

It is customary to speak of nutrition in pregnancy as though it differed in some directions—in the supply of certain food essentials, for instance—from nutrition at other periods of life. Indeed, the very title of our subject suggests such a distinction. It is customary also to speak of pregnancy as though it involved an additional burden on the maternal organism, as, unfortunately, it often does. But I suggest to you that the nutritional needs in pregnancy are those necessary to the continued efficiency of the function of nutrition throughout life. For in this efficiency the efficiency of that other fundamental function of the body—reproduction—is inherent. As well might we regard the taking of a steep hill as a feat additional to the normal function of a motor car as regard the making of a seven-pound baby as a feat additional to the normal function of woman. The properly constructed car, the properly adjusted, oiled, greased, fuelled, and tended car takes the hill in its stride; the properly constructed, adjusted, fuelled, and tended woman takes pregnancy in hers. It is this construction, this adjusting, this fuelling, this tending, that, in the perfection of its operation, the function of nutrition effects. But the case is different with the ill-constructed, the ill-adjusted, the ill-tended woman, in whom the function of nutrition from infancy onwards has been faulty. Then, indeed, pregnancy becomes a feat to which some succumb and from which many emerge with some weakness exposed, some permanent damage incurred. It is not, however, with the ill-constructed, the ill-adjusted, the ill-nourished, the ill-conditioned that I am here concerned, but with the Rolls-Royce of womanhood, or for that matter with the dependable Baby Austin or Morris Minor. It is to the production of these—aye, to their mass-production—that we must direct our energies, though the salvaging, the patching-up, of wrecks must still remain our portion.

The nutritional needs in pregnancy are, I repeat, those necessary to the efficiency of the function of nutrition. Their satisfaction must begin not with conception but with the ante-natal life of the mothers of our race. It

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must continue throughout the period of their growth and development up to, during, and following that period when they find their fulfilment in motherhood: a fulfilment for which nutrition prepares and makes ready the way—sometimes well, sometimes ill, according to its perfection or imperfection. It is impossible to dissociate reproduction from nutrition. It is impossible to dissociate reproduction from the acts and processes involved in nutrition. Respiration, digestion, absorption, secretion, circulation, assimilation, excretion: these are prologues to the crowning act of the imperial theme of motherhood.

Four Things Needful

What, then, are the things needful to the efficiency of the function of nutrition? They are:

First, the adequate provision of the materials with which this function is effected: oxygen, water, properly constituted food, and a substance or substances produced in the skin by the action of sunlight.

Second, the efficient performance of each one of the acts or processes involved in nutrition, these acts or processes being themselves dependent on the proper nourishment of the organs and tissues performing them.

Third, the practice of measures and habits of life favourable to the efficiency of the function of nutrition: appropriate exercise in the open air, proper breathing, agreeable mental occupation, promotion of the function of the skin by bathing, suitable clothing, and exposure of parts of the body to such sunlight as is available, promotion of the action of the kidneys and bowels by proper food and the free consumption of water.

Fourth, the avoidance of all influences that adversely affect the function of nutrition: such, for instance, as insufficient rest and want of sleep, bad ventilation, insanitary conditions generally, worry, emotional excitement, constipation, alcohol, and infection.

These are the nutritional needs in pregnancy as they are the nutritional needs of the body throughout life. Their satisfaction makes of pregnancy one of the happiest, the most healthful, periods of a woman's life.

Dietetic Requirements in Pregnancy

This brings me to that section of our subject which, to judge by the programme before us, is to occupy the remainder of this morning's session: dietetic requirements in pregnancy. I shall not attempt to discuss these requirements in detail, but will content myself with an enumeration of the foodstuffs which, if properly produced, properly treated, and properly combined, provide all the food essentials the prospective mother needs. These foodstuffs are, in order of precedence: (1) Milk and the products of milk (butter, cheese, skimmed milk, buttermilk). (2) Whole or lightly milled cereal grains; in particular a good wholemeal bread or standard bread, and oatmeal. (3) Green and leafy vegetables. (4) Root vegetables, particularly potatoes, carrots, and onions. (5) Fruit, including the tomato. (6) Pulses. (7) Egg. (8) Meat, including fish, fowl, and glandular organs. To these there must in this country be added cod-liver oil, not in the large doses commonly prescribed but in the sufficient dose of a teaspoonful daily. And as an additional assurance of functional efficiency of blood, muscle, and nerve, a portion of yeast extract is a wise precaution.

Those of you who have studied the revised report of the Technical Commission appointed by the League of Nations to define the nutritional needs of the human being in the course of development from conception to adult age will be aware that it is from these foodstuffs that the Commission prepared their dietary schedules for all periods of life up to and including pregnancy. They had in mind, no doubt, the preparation of the female of the human species for motherhood.

Animal Protein: Wholemeal Bread

One revision of this report has been made, and I hope that the next one, already foreshadowed, will remove what, in my opinion, are three blemishes on its excellence. The first of these is the unnecessarily high amount of animal protein (68 grammes out of a total protein content of 105 grammes) it prescribes. The 40 grammes provided by milk and cheese are sufficient—though an additional 10 grammes may be provided by liver, fish, or meat—sufficient, that is to say, if whole cereal or lightly milled cereals be used instead of highly milled ones and if more green-leaf vegetables be included in the diet. Physiological as well as economic prudence forbids a greater intake of animal protein than is needful.

My second criticism is the insufficient insistence on the use of wholemeal bread. "*White flour* in the process of milling is deprived of important nutritive elements. Its use should be decreased and partial substitution by *lightly milled cereals,* and especially *potatoes,* is recommended." This exhortation is well enough so far as it goes. But it is complete, not partial, substitution that must, in my view, be at all times and in all places insisted upon. For the important nutritive elements of which white flour is deprived include the vitamin B complex, vitamin E, an unidentified haemopoietic factor, the proteins of the germ and bran which are of relatively high nutritive value and so constituted as to supplement those of the interior of the grain, and fibre, which is of particular merit in ensuring the efficient action of the bowels. It is folly to deprive bread—the staff of life—of nutritive elements so important to the well-being of the body whether in pregnancy or at other periods of life.

Fresh Vegetables and Fruit

The third criticism that I have to offer is the relative paucity of fresh green vegetables and raw ripe fruit in the dietary schedule. These should form a large part of the daily diet. It is not alone for their vitamin C content that they are of such value, but for their proteins which, though small in amount, are of high biological value, for their mineral contents, and for their utility in maintaining the balance between alkali-yielding and acid-yielding ingredients of the food.

Not long ago I came across an injunction given to pregnant women by Scevole de St. Marthe in the sixteenth century. It is worth repeating, though no doubt it is familiar to many of you:

> "Let neither Grief, nor Fear, nor boundless Joy,
> The peace and vigour of thy Mind destroy.
>
> Refresh thy weary Limbs with sweet Repose,
> And when Fatigued thy heavy Eye-lids close.
>
> . . . be careful, how your Meats you chuse,
> And chosen well, with Moderation use.
> With too much Food your Stomach ne'er oppress
> And let it as 'tis richer, be the less.
>
> Mix Water with your Wine to quench your Thirst,
> And never let the last exceed the first,
> Fruit, Herbs, and Sallads when the Body's dry
> The want of Moisture will as well supply.
>
> Don't, till 'tis Born, defer thy Pious Care,
> Begin betime, and for its birth prepare."

NUTRITION IN PREGNANCY*

BY

DAME LOUISE McILROY, D.B.E., LL.D., M.D., D.Sc., F.R.C.P., F.C.O.G.

In all discussions upon nutrition many problems and difficulties arise, as the subject involves not only the physiological requirements of the individual but social and economic factors. When the question arises as to what is a suitable diet in pregnancy the problem is even more complicated, as it involves not only the maintenance of maternal health but in addition the nutrition and growth of the foetus.

The reduction of maternal mortality has now become a national responsibility, and if further progress is to be made more attention must be paid to nutritional defects in the diet of the expectant mother. The more one studies the diseases of pregnancy and even the complications of childbirth, the more is one convinced that these owe their origin in many cases to dietetic defects and that they should be classified as deficiency diseases. In spite of all the valuable research that has been undertaken with regard to nutrition both in man and in animals, it is only during the past few years that these results have begun to be applied to obstetrical practice.

The maternal organism has not only to maintain its normal condition of nutrition but it has to act as a storehouse for the needs of the foetus. If these reserves become depleted at any time the foetus may become a parasite upon the maternal host, as it is imperious in its demands for growth and maintenance. We know that, for example, the liver stores up glycogen, calcium, iron, and other substances for the needs of the foetus. If these reserves become inadequate the result is shown by the onset of anaemia, toxaemia, eclampsia, or vomiting of pregnancy. If the supply of vitamins and mineral salts is deficient abortions and stillbirths may take place. Such knowledge has been of inestimable value clinically in the treatment of the complications of pregnancy by substances which after all reinforce, one might say, the diet of the expectant mother.

It is within the bounds of possibility that one of the chief determining causes of puerperal sepsis, which is responsible to a large extent for the maternal death rate, is defective nutrition, with the consequent lowering of resistance to infective organisms.

Importance of Diet

In the ordinary course of work in an ante-natal clinic we find that many patients complain of dyspeptic disturbances, muscular cramps, sleeplessness, backache, and other symptoms during pregnancy. These can be treated with good results not by sedatives as formerly but by the administration of mineral salts such as iron and calcium and by careful advice as to diet, together with the observation of routine weighing and control of open-air exercise. If we could prevent the occurrence of such symptoms by dieting the results would obviously be much more satisfactory.

Infant mortality has been reduced to a very marked extent not by the discovery of new methods of treatment but by the careful attention to diet and general hygiene which is carried out in infant welfare clinics. The establishment of these clinics has reduced the admission to hospitals of children suffering from deficiency diseases such as rickets.

*Abstract of paper read in opening a discussion at a joint meeting of the Sections of Nutrition and Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Belfast, 1937.

My aim in the present discussion is not to stress the subject of diet deficiency in pregnancy so much as to endeavour to obtain some practical solution for the problems we meet with in the ante-natal clinics attended by working-class mothers.

How much time does the average medical officer of a clinic spend upon each patient in giving advice as to her diet? What are the possibilities of carrying out this advice when given? The average woman cares little about the mathematical exactitude of the caloric value of foodstuffs or their vitamin contents. Her concern is the best possible return for her financial outlay, so that the hunger of her family may be satisfied. Her attention is directed towards appetizing foodstuffs which give little trouble in preparation and allow of the smallest amount of waste. Too often do we find that in the poorer districts the patient sacrifices her own needs to those of her family, and it is for this reason that the supply of food for those in attendance in clinics has been somewhat of a failure. The problem of expense is the greatest difficulty when we know that the chief source of vitamin supply is to be obtained from fresh dairy produce and green vegetables. Not only is the price prohibitive, but there is the difficulty of obtaining pure milk and fresh food. Even in pastoral counties I have known of instances where it is impossible to obtain an adequate supply of milk for expectant mothers. Dairy produce is purchased in quantities for the supply of cities and the local requirements are neglected. Green vegetables are as a rule prohibitive in price, especially in the winter months.

The whole question of diet and supply must be discussed from a common-sense and practical standpoint. We must not try only to adapt the patients to existing conditions, but must improve those conditions of supply to what we consider just demands. It is an easy way out of the difficulty for the medical practitioner to order gallons of cod-liver oil and tablets of mineral salts, but it is an artificial method of procedure. Fresh herrings, which contain life-giving vitamins, are often unobtainable because of the difficulties of transport, and for this reason are thrown back into the sea.

What is the diet of the average working-class mother of to-day? We have only to look at the shops in the country villages as well as in towns. Windows are heaped with bread made from milled flour, which is now the substitute for the home baking of our ancestors. It is cheap and satisfying, and is ready prepared. There are piled up tins of every conceivable form of foodstuff, meat, vegetables, and fruits, which are not an addition to the diet but a substitute in many cases. These tinned foods are appetizing, are ready prepared, and have little waste, but in spite of assurances to the contrary they can never replace fresh foods. Supplies come from abroad from long distances, and we find our working classes consume chilled meat, imperfectly thawed and then cooked out of all recognition of its original nutritional substances.

How many ante-natal clinics or hospitals concern themselves with lessons in the preparation of foodstuffs? Do our rural institutes give demonstrations in food expenditure and values and in the storage of perishable articles? It is all very well for our laboratory workers to publish lengthy treatises on food values or the amount necessary for family maintenance. The whole commissariat system breaks down in the hands of the woman of the house, whose lack of knowledge of cooking and storage is responsible for the destruction of the main vitamin content of the food she supplies to herself and her family. An indescribable amount of waste takes place in homes

because of lack of proper storage. Deterioration rapidly occurs in milk and vegetables, and it is not to be wondered at that so many suffer from malnutrition and come to the hospitals with complaints due to digestive disorders.

Conclusion

I know all this may seem below the standard of a scientific discussion, but in my opinion little progress will be made until we tackle the problem from this point of view. It is a national concern which involves the support of our own agricultural producers, the transport of foodstuffs, the wise buying, education in cooking, and the provision of houses where facilities for storage are made available.

The problem of maternal nutrition is a national one and we can all help in its solution, but the methods we employ must be in co-operation with other forces outside our own profession.

DIETARY REQUIREMENTS IN PREGNANCY AND LACTATION *

BY

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The efficient performance of the function of reproduction is closely associated with the nutritional state of the reproducing female. This is clearly recognized by the farmer when feeding his cows, sheep, and pigs, and much of his success as a farmer is dependent upon his application of this knowledge.

The reproducing female requires, in addition to the dietary constituents (adequate in quantity and variety) necessary for her own bodily maintenance, supplementary quantities of many foodstuffs in order to nourish her offspring both *in utero* and at the breast. The question of how intimately successful reproduction in the human being is associated with nutritional factors has not yet received the attention it deserves. Consideration of maternal mortality and morbidity, of abortion, miscarriage, and stillbirth, of neo-natal and infantile mortality, has, it seems to me, been orientated too closely to the pathological and infective processes which may be the terminal factor in obstetric disaster, and too little to the fundamental factors of nutrition which may prove to be the precursors of the morbid conditions just referred to. There is much basal truth in the suggestion made by Dame Louise McIlroy in 1935 that the solution of the problem of maternal mortality and morbidity lies in the kitchen rather than in the laboratory or hospital ward.

There are those who have advocated a restricted intake of food during pregnancy in order that the birth weight of the child may be kept low and so ensure easy delivery. The balance of evidence, however, appears to indicate that the birth weight is uninfluenced by restrictions of diet that are likely to be submitted to by the expectant mother. Further, there appears to be little reliable evidence to support the contention that excessive eating by the mother results in the production of overweight infants, whatever effect it may have on the maternal organism. Nor is it certain that food restriction during pregnancy reduces the incidence of toxaemias; for there now is evidence supporting the view that it is food restrictions or deficiencies that are potent causal factors in the production of the toxaemias which we have tried to avoid by cutting down the quantity of food eaten.

It appears to me that the mere determination in grammes and milligrammes of the minimal requirements of the pregnant woman for the proximate principles of a satisfactory diet is of academic rather than of practical importance; for as deficiencies seem to be of more consequence than excesses there must be in the field application of laboratory findings a factor of safety introduced which, in the daily routine of marketing and cooking, has of necessity to be somewhat generous. The idea that special diets are essential for the reproductive phase of female activity does not coincide with physiological dicta. If the diet of a woman of reproductive age requires, during pregnancy, additions not merely quantitative in nature it is indicative, not that she needs new substances for the purpose of gestation, but that her previous diet was inadequate.

The quantity of food eaten, expressed in mere calories, is of little practical importance. Gross shortage of calories, except among a very small section of the impoverished, is rarely encountered. A deficient calorie intake can be easily and cheaply corrected by the addition of cereals and/or sugar, and little anxiety need be felt on this score. The unfortunate factor is that if the calorie intake is mainly derived from carbohydrate sources these substances may bulk too largely in the total intake and may, by substitution, reduce below the safety level the ingestion of foods containing protein, minerals, and vitamins. There is real danger of this among women who exist at a low income level.

There is a lack of reliable data as to the optimal intake of fat during pregnancy. It is probable that the kind of fat eaten is of more importance than the quantity, and that the varying value of fats from different sources lies not so much in their chemical composition as in the extent to which they act as vehicles for various vitamins. Linoleic acid, however (a constituent of some fats), does seem to have special qualities.

There has been much controversy as to the role of protein during pregnancy. Many practising obstetricians advocate a low protein intake in order to avoid toxaemias. I suggest that this attitude be examined with care. The League of Nations Technical Committee recommends 2 grammes of protein per kilo of body weight. Those who advise a diet containing a large quantity of milk do not seem to realize that they are recommending large quantities of protein and in a form in which there is no loss from cooking such as occurs with flesh proteins. Terroine, mainly on theoretical grounds, is an advocate for a low protein diet at all ages, but the recent work of McCance and Widdowson on the losses of protein during the preparation and cooking of food points to the advisability of a safety factor in consumption much greater than theoretical considerations warrant. Analysis of the food intake of the poorer sections of the community shows that the amount of protein is often very, very low, and is even precariously near the maintenance level of the mother herself. Some native races, notably the Eskimo, consume enormous quantities of protein, and apparently without ill effect.

Mineral Requirements

Minerals constitute an essential part of the dietary of pregnant women and, certainly among the poor, deficiencies in these substances are not uncommon. Anaemia is very often present in those with restricted income, and the degree of anaemia seems to be progressive, the

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multipara showing greater degrees of it than the primigravida. The requirements of the female of reproductive age in regard to iron are, because of monthly depletion, greater than those of men of comparable ages, and, with a habitual diet barely sufficient to maintain the iron requirements of a man, the anaemia of the woman is progressively increased with age. The association of anaemia with gastric hyperacidity may not be unconnected with some of the nausea and vomiting commonly observed. The number of milligrammes of iron needed to maintain a positive balance of this mineral in the body has been determined, but dietetically is not of importance in that if the deficiency is made good by pharmaceutical preparations the daily dosage must be much greater than the theoretical requirements; if the iron is given in foodstuffs which contain it naturally the amounts given should also be in excess because of the variable content of iron. As there is no evidence that excess of iron can be harmful the actual quantity prescribed may be large.

The daily requirements of the woman for calcium have, like those for iron, been determined with considerable theoretical accuracy, but in practice the needs seem to be greater than estimated by laboratory methods. There has been a fear that excess of calcium may render the foetal head less susceptible to moulding during its passage to the outer world, but reliable evidence on this point is lacking. Clinically it does appear to be recognized that the imperfectly calcified head of the premature infant suffers damage during birth more readily than does the brain within a fully developed skull. Ease of delivery may thus be gained at the expense of damage to the infant's brain, and even to its chance of survival. The usual diet of many women of the poorer classes is substantially deficient in calcium, and I have found that this shortage is imperfectly corrected by the addition of a pint of milk a day to the diet. Clinically this is manifest by the occurrence of painful muscular cramps and perhaps of tumultuous movements of the foetus, even when the woman is getting the calcium in a pint of milk in addition to that contained in her ordinary diet. The administration of one of the preparations of calcium in such cases relieves the pains and discomforts of calcium shortage with dramatic suddenness.

Mineral shortage is, like vitamin shortage, rarely a single deficiency. When one particular mineral is ingested in insufficient quantity it is odds on other minerals or vitamins being also present in the diet in inadequate quantities.

Functions and Actions of Vitamins

The question of the sufficiency of vitamins during pregnancy is extremely complex, and here again it seems that the only way to safety lies in ensuring that a margin be provided. The ill effects of hypervitaminosis are unlikely to be manifest unless colossal doses are administered.

The association between minerals and vitamins is not yet completely worked out, though much valuable research is being done in this respect. The routine administration to all pregnant women, at any rate women of the poorer classes, of vitamins A and D is becoming more and more popular, and although carefully controlled experiments on the subject have been few, it does seem that the incidence of puerperal pyrexia, and even of puerperal fever, may be diminished by this means. Certainly women living at or near the poverty line are unanimous as to the increased sense of well-being when these two vitamins are supplied.

The functions and actions of the B group of vitamins and of wheat-germ oil (vitamin E) are extremely complex and as yet incompletely understood. For about five years I have made somewhat extensive use of wheat-germ oil, and it undoubtedly does prove effective in the prevention of many abortions, miscarriages, and premature births; and in some cases of pregnancy albuminuria its beneficial effects are rapidly apparent.

Those who have followed the interesting experiment carried out in South Wales under the direction of Lady (Rhys) Williams, in which the diet of expectant mothers has been very materially increased in regard to protein and the B group of vitamins among other supplements such as milk, must have been impressed with the results. In brief, the results are that in about seven thousand expectant mothers whose diets have been substantially increased the death rate, particularly from sepsis, is only a small fraction of that among about fourteen thousand women not so helped. If the results so far obtained during a relatively short time are continued it would appear as if the nutritional factor in maternal mortality is of the utmost importance and provides the key to the solution of a great social problem.

Relation of Nutrition to Lactation

Space does not permit of consideration of other necessary dietary constituents or of more than a passing mention of the relation of nutrition to lactation. So far as breast feeding is concerned we have much to learn from the dairy farmer, whose living is dependent upon milk production. He knows well that protein is the key to successful lactation, though of course other dietary constituents, and particularly the minerals, play their part. Application of the practice of the dairy farmer to the nursing mother is usually successful. No woman, any more than a cow, can produce milk without adequate consumption of protein. A pint of human milk contains approximately twelve grammes of protein, and this protein can only be derived from the protein in the mother's diet. But the human body is not a perfect biochemical factory, and the nursing mother requires, for each pint of breast milk produced, approximately twenty-four grammes of good quality protein in her diet in addition to her own bodily requirements of protein. Application of this simple arithmetical sum has done more in my own experience to promote successful breast feeding than any other measure or combination of measures.

Conclusion

The subject for discussion to-day is so large and its ramifications so numerous that I have been able to indicate only a very few of the problems with which we are daily brought into contact. It seems to me that the addition of various preparations of minerals and vitamins to a deficient diet is a pharmaceutically correct procedure, but ought not to be necessary; neither should supplements to the diet. The food eaten should contain a sufficiency of all the numerous substances requisite for reproduction and lactation, and there is some reason to think that the natural products may be better than those prepared by artificial means. Further, it is probable that the natural foods contain substances—one cannot yet define them—which, though necessary for the maintenance of health, have not yet been separated or recognized in the laboratory. Unfortunately economic considerations enter into the solution of the problem.

One may perhaps summarize the position by stating that the most satisfactory diet for the pregnant and nursing woman is one which contains the greatest possible variety of foods in adequate quantities.

ARTIFICIAL PNEUMOTHORAX TREATMENT

WITH SPECIAL REFERENCE TO BILATERAL COLLAPSE*

BY

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The value of artificial pneumothorax treatment for pulmonary tuberculosis is now well established, and the time has come to consider whether the method can be more fully utilized. To render a patient's sputum negative to tubercle bacilli, to arrest the disease, in any case, is a service not merely to the individual but to the community and the State. It deals with a centre and source of infection. I would like to put in a plea to-day for (1) a more widespread use of the treatment in the early and acute types of the disease; (2) ambulatory artificial pneumothorax; (3) bilateral artificial pneumothorax; with special reference to the last-mentioned.

1. Early and Acute Forms of Pulmonary Tuberculosis and Artificial Pneumothorax

Collapse therapy "won its spurs" in the treatment of advanced pulmonary tuberculosis. Forlanini in working out the technique and establishing the reputation of artificial pneumothorax, limited himself to advanced cases of the disease with bilateral lesions. For many years it was looked upon as a last resort—this was due to the fact that in the past it was not without its dangers. It being a principle in the profession that no remedy must be more dangerous than the disease which it is intended to cure, the early, even the acute, case was not considered to be bad enough to subject it to the risk involved. Nowadays, with the technique perfected and the treatment practically safe, should artificial pneumothorax not be looked upon as the method to adopt whenever an early or acute case of tuberculosis presents itself? What may happen to such a case? One of three things:

(i) Great improvement.—Too often that creates a false sense of security, and the patient takes risks and has an exacerbation only to be met with six months or perhaps six years later, hopelessly advanced.

(ii) The lung disease remains more or less stationary, with cough and persistently positive sputum; but the pleura, irritated by its presence, becomes adherent.—This may be a conservative influence on the part of Nature to rest the lung and facilitate the cure of the disease. It, however, may prevent the induction of an artificial pneumothorax later.

(iii) The lung disease becomes worse and the extra-pulmonary complications develop.

The induction of an artificial pneumothorax obviates all these risks in a large proportion of cases. Emulating Nature in the process of cure, it rests the lung and facilitates fibrosis.

Lawrason Brown years ago predicted that "artificial pneumothorax would be used in all early cases in the future." He is a sound and experienced phthisiologist who would not make such a statement without considering it carefully. It is also a conclusion to which many reliable workers have come. The early stage is certainly the ideal one for effective therapeutic collapse. Adhesions are few, collapse is easily effected, and the sputum is rapidly rendered negative. The bad results are met with when pneumothorax treatment is resorted to in advanced and toxic cases, although even then it may produce marvellous results. It is my considered opinion that whenever a patient presents himself with a unilateral lesion of the exudative or the bronchopneumonic type the induction of an artificial pneumothorax should be attempted without delay. It is the best, the safest, and the shortest method of securing arrest. The "wait and see" policy is disastrous.

With views such as these, it is vexatious to meet with what appears to be callousness, not infrequently on the part of some public health authorities, on this matter. A young adult who cannot afford to go into a private institution is seen to have such a lesion. The case is notified in the usual way, with a request that it be dealt with immediately, as the condition urgently requires treatment. The case is leisurely visited in a week or ten days by a doctor or nurse, and then left alone for six or eight weeks or even longer. During that period the disease probably progresses. It may become bilateral, adhesions may form, and artificial pneumothorax treatment be unavailing. If it were an acute appendix, an acute osteomyelitis, or even an acute pleurisy the patient would be admitted at once to a voluntary hospital and given immediate treatment. Yet these conditions are by no means more serious, or more hopeful if suitable treatment be given, than early tuberculosis.

It is of course true that the official hands are often tied, that accommodation is limited, and that institutional treatment cannot be arranged rapidly. It is, nevertheless, a matter of prime importance for all who are responsible for the treatment of tuberculosis to have adequate accommodation in order that such urgent cases be dealt with without undue delay.

2. Ambulatory Artificial Pneumothorax

In 1928 I was asked to see an Italian with lung disease, and diagnosed pulmonary tuberculosis. The lesion was largely unilateral, and I advised him to go into a sanatorium with a view to having an artificial pneumothorax induced. He refused to do so. As he did not improve after a few months he returned to his native land. There he continued to go downhill. Nearly a year after the diagnosis was made he went to a hospital in Naples to consult Dr. Castillani. He was *x*-rayed, and was told there was but one cure—artificial pneumothorax. The following day Dr. Castillani attempted the induction in the out-patient department and was successful, although it caused a good deal of pain. The patient was kept resting for two hours, and was then allowed to walk back to his hotel. Refills were given on the second, fourth, and seventh days, and repeated thereafter weekly for two months. At the end of that period he felt fairly well, so he returned to this country to resume work. He was referred to me for treatment, and I gave him fortnightly refills at my rooms. This patient has continued to do well, and has built up a prosperous business.

The facts of this case made me think. I could quite well have given him the same treatment at my rooms or at the dispensary. I determined to follow the procedure in other cases. It had much to commend it, especially in view of the usual difficulty in obtaining early admission to a sanatorium. Further, a certain number of patients refuse to enter such an institution under any circumstances. It is unfortunately true that if it be known that an indi-

* Read in opening a discussion in the Section of Tuberculosis at the Annual Meeting of the British Medical Association, Belfast, 1937.

vidual has been in a sanatorium he is frequently handicapped in after-life.

Following upon this, during these past nine years I have carried out ambulatory pneumothorax on a large number of patients with most encouraging results. In fact, when I now meet with a new case of tuberculosis, provided (*a*) that the lesion is unilateral, (*b*) that the general condition is not undermined by toxins, (*c*) that loyal co-operation can be secured, (*d*) that the patient's home conditions are satisfactory, I make it a rule to advise domiciliary measures and ambulatory artificial pneumothorax. It has undoubtedly proved a most valuable procedure. So far, having carefully selected the cases, they have all done well. The following are examples:

A patient, a dairy farmer, refused sanatorium treatment because he said "no one would buy his milk" if he went to such an institution and his family would be ruined. After a month in a nursing home, as a result of the artificial pneumothorax treatment he lost his cough, and what sputum he produced failed to show any tubercle bacilli. He was able to return to work. During the six years that have elapsed he has kept perfectly well, and has since married.

Another patient, a mother, on the diagnosis of pulmonary tuberculosis being given and sanatorium treatment being recommended, said she could not possibly leave her family with no one to attend to them, and refused to go. A satisfactory collapse was effected at home, and she has done excellently. The disease was arrested.

A bank agent who had recently been appointed to his post broke down. Sanatorium treatment was advocated, but was refused as it would jeopardize his future. He lay off for a few weeks and had a collapse effected, and, losing his cough and sputum, returned to work, the cause of his disability not being suspected by anyone. Such cases could be multiplied.

There is not the slightest doubt that ambulatory artificial pneumothorax treatment could be more extensively carried out than it is at present. If it were practised, in the first place many hospital and sanatoria beds would be freed for acute cases or patients whose home circumstances demand institutional care; secondly, the stigma of being an ex-sanatorium patient and the handicap it involves would be nullified (As I was writing this a patient called to discuss his future. He had had to resign his position, not because he was unfit for work—any disease which he had had was definitely arrested. He had been asked to resign simply because he had been a patient in a sanatorium.); thirdly, the cost to the State for treating tuberculosis would be lessened, although the facilities for out-patient treatment might require to be increased; and, finally, the morale of many patients would be conserved and not undermined as so often happens as the result of prolonged hospitalization. Ambulatory artificial pneumothorax is not a heroic measure provided it is not used in acute, advanced, or toxic cases.

Hitherto I have not emulated Dr. Castillani of Naples and induced artificial pneumothorax in my rooms or dispensary to any large extent, although I have done so on one or two occasions. One usually begins the treatment at home and carries on with it at the consulting rooms or the dispensary after a few weeks.

As I have indicated, this is not an original procedure. It seems to be practised to a fair extent in other countries, America particularly. Whether others practise it in this country I cannot tell. Baum, writing in *Tubercle* in February, 1936, states that he knows several pulmonary tuberculosis patients with positive sputa who had their lungs collapsed while waiting to go into a sanatorium and became sputum-negative. When a vacancy did occur they refused to enter.

The question of *x*-ray control arises, but that is not a really serious difficulty with the many excellent portable equipments which may be obtained at a reasonable figure. They can be used both for screening the patient and for taking *x*-ray photographs at the bedside.

3. Bilateral Artificial Pneumothorax

It has always been recognized that cases of pulmonary tuberculosis with bilateral involvement have a definitely bad prognosis. What can artificial pneumothorax do for such? The fact that bilateral pneumothorax is compatible with life has been demonstrated by the bilateral spontaneous cases which have been reported by various workers. Further, the beneficial effects of a bilateral collapse are demonstrated during the later stages of pregnancy in women with advanced pulmonary tuberculosis. In this condition the gravid uterus, pressing the diaphragm upward into the thorax, acts like a bilateral pneumothorax or phrenicectomy. They almost invariably feel better while they are carrying the child. Bilateral artificial pneumothorax treatment has a definite place in the therapeutics of pulmonary tuberculosis.

The honour of introducing the treatment for this purpose must be given to Parry Morgan of Cardiff and Ascoli of Palermo. Parry Morgan administered it to an apparently hopeless case in 1912. Four years later the patient was doing well. Ascoli in the same year, at a conference in Rome, asserted that the high pressures advocated by Forlanini in pneumothorax treatment were not necessary. A low pressure sufficient to cause simple relaxation of the lung often did more good. Further, he asserted that if one used low pressures artificial pneumothorax could be given to both sides simultaneously, and instanced a very serious case with bilateral mischief which he successfully treated in this way.

In discussing bilateral artificial pneumothorax two main types require to be considered: successive and simultaneous pneumothorax.

SUCCESSIVE ARTIFICIAL PNEUMOTHORAX

In successive pneumothorax the treatment begun on one side is stopped before an attempt is made to induce a pneumothorax on the other side. It may be a high- or low-pressure pneumothorax—the presence of adhesions will determine. Forlanini in the year 1911 reported two cases in which he had obtained an arrest of the disease by successive pneumothorax. I, personally, have had most encouraging results with this procedure. Several of my patients who are now working steadily had bilateral disease and had the worse lung compressed, and, later, as the disease remained active in the contralateral lung, had that collapsed, the treatment first being stopped on the side originally dealt with.

Burrell has pointed out that in bilateral mischief, giving pneumothorax on one side even for a week or two, then stopping and giving it on the other side, often stimulates fibrosis. Successive artificial pneumothorax, however, is really unilateral pneumothorax, first on one side and then on the other.

SIMULTANEOUS ARTIFICIAL PNEUMOTHORAX

In simultaneous artificial pneumothorax the treatment is given on both sides simultaneously or alternately. Although a quarter of a century has elapsed since this method was first advocated, simultaneous pneumothorax has not been widely adopted. The reason for this is not far to seek. By most workers it has been looked upon as a heroic measure, and only resorted to when a patient was very ill. Consequently the end-results as published in

various quarters are as a rule not encouraging: usually not more than 10 per cent. respond favourably to the treatment, although a few American workers have reported good results in over 50 per cent. of their cases. In my own experience simultaneous artificial pneumothorax treatment, judged by the end-results over a period of years, was in the first series of cases a record of failure. I carried it out on several cases each year—round about 1920—without the ultimate survival of any: the longest duration of life after treatment was begun was two years. I recognized that I made a mistake in using it only for the serious advanced type of case. In later years I resorted to it with greater confidence in less advanced and less toxic cases, with more encouraging results. Approximately one-third were definitely helped and had the sputum rendered negative. One-third improved symptomatically, and one-third went downhill in spite of the treatment. About half the cases were treated for a flare-up in the contralateral lung, the other half were cases with bilateral mischief from the time of diagnosis. Later experience, therefore, demonstrated that fairly good results could be expected if the collapse were effected before widespread adhesions formed, before the production of thick-walled cavities, and before the toxaemia resulted in cardiovascular debility.

Simultaneous bilateral artificial pneumothorax has a definite though a strictly limited field in the treatment of pulmonary tuberculosis: its indications cover a wide field. It may be considered for: (1) Contralateral lesions occurring during unilateral collapse. (2) Persistent haemoptysis failing to yield to unilateral artificial pneumothorax treatment. (3) Acute bilateral bronchopneumonia, if limited to the upper lobes. (4) Bilateral cavitation, particularly if it is of the moth-eaten variety. (5) Contralateral pleurisy with or without an effusion. (6) Mobility of the mediastinum, rendering unilateral collapse ineffectual. (7) Hilum lesions with a tendency to remain mesial rather than assume a peripheral distribution. (8) Pregnancy in a woman with bilateral tuberculosis: by it one can keep up the pressure after the delivery of the child and thus lessen the liability to exacerbations occurring at that time.

It cannot but cause disappointment when used: (*a*) if the patient is dyspnoeic and has a vital capacity under 1,500 c.cm.; (*b*) when the toxaemia is very marked, particularly if the patient be cachectic, and as a result there are evidences of myocardial degeneration and inability to compensate for increased work; (*c*) if there are large fibrous cavities adherent to the chest wall. In such cases a thoracoplasty may help.

Advanced disease is not a contraindication provided the general condition is good, nor yet are complications such as tuberculous laryngitis. It may help this condition. Intestinal tuberculosis and genito-urinary disease are usually contraindications. Further, it should rarely be attempted in patients over 45 years of age. The cardiovascular system after that age fails to compensate well.

Technique

In carrying out the treatment the principle of low-pressure technique must be observed and the patient be left always with a definite negative pressure. If, therefore, it be determined on during unilateral pneumothorax treatment for contralateral activity, the pressure on the side already treated must be brought well below the zero level to enable any healthy lung tissue present to function. In cases which have not previously had pneumothorax treatment it must be instituted with great care and consideration. One lung—the one more affected—should be dealt with first, and the patient should be able to go for a week without refills before the other lung is treated. Of necessity the refills have to be small, and therefore have to be given fairly frequently. The two pleural cavities may receive refills simultaneously, but that is rarely advisable, at least until the treatment has been well established.

It is important to aim at having the pressure on both sides equal, or nearly so. If they differ much and the mediastinum is mobile, symptoms suggestive of a spontaneous pneumothorax may be produced. For example, a patient who had a bilateral collapse complained of great pain on the left side of the chest, with marked dyspnoea. The intrapleural pressures were taken; that on the right side showed a much greater negative pressure than the left. The pressures were then equalized and the distressing symptoms passed off.

Some American workers have instituted a bilateral collapse on ambulatory patients: I have not attempted this so far—the risks appear too great. There are two things that always cause not a little anxiety while carrying out the treatment, bilateral treatment more so than in unilateral treatment. These are, first, the risk of puncturing the lung and causing a traumatic pneumothorax or an air embolism; secondly, the production of a fluid effusion which may cause excessive intrapleural pressure and dyspnoea. To ensure safety the *x* rays should always be resorted to and the patients screened before each treatment. During this a site should be chosen where the needle can be inserted with relative safety; at the same time the presence of fluid may be noted and due care taken. It is well also to screen after treatment to ascertain the degree to which the healthy lung tissue is functioning. The risks involved in puncturing the lung may to some extent be obviated by using a needle with an external diameter of not more than 1.20 mm.

How long should bilateral pneumothorax treatment be continued? Provided that there is an adequately functioning lung and a fair vital capacity it may be continued indefinitely. It is, however, usually advisable to let the less affected lung up as soon as possible: a year is considered a safe period. One patient who had a contralateral flare-up, with evidences of cavity formation, had that lung successfully collapsed. After a year it was allowed to expand. The case later came to necropsy, when it was noted that all evidence of infiltration and cavitation had disappeared and only scar tissue remained.

It is frequently advisable to continue artificial pneumothorax treatment on the worse side indefinitely.

Summary

Summing up, one may firmly assert regarding bilateral artificial pneumothorax:

It is definitely beneficial in selected cases, offering relief of symptoms to many, arrest of the disease to a few. It may give fresh hope to an otherwise hopeless case.

While it may prove useful in advanced bilateral cases, it is particularly indicated in cases with lesions limited to the upper lobes of the lungs or to the perihilar area.

The end-results depend on: (*a*) The general condition of the patient, particularly his cardiac muscle. (*b*) The proper selection of cases. (*c*) The technique of the physician and his skill in dealing with complications which may arise: it is not a procedure which may be left to junior residents or novices. (*d*) The facilities for adjuvant measures—general rest, gold treatment, surgical procedure, etc.

TREATMENT OF LARYNGEAL DIPHTHERIA*

BY

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In our discussion on diphtheria and its treatment we are promised several contributions from authorities of large experience in special branches of this important subject. In opening the discussion I shall not make any attempt to review this wide field, but will confine my remarks to the treatment of laryngeal diphtheria of such severity as to require operative intervention.

Methods of Treatment

Of the three methods of dealing with such cases—namely, tracheotomy, O'Dwyer's intubation, and electric suction—I think it will be agreed that only the first two are of much practical importance. Electric suction is comparatively new, and I believe that the general opinion now is that this method has a very small field of usefulness. I think the time has arrived for those of us who are called upon to treat large numbers of cases requiring operation to pool our experience and our results with the view of deciding which method—tracheotomy or intubation—as a routine procedure in ordinary cases does give the better total results. Evidence on which to form a correct judgement on this point is very difficult to obtain. In visiting large fever hospitals and making inquiries on this point one generally finds that the physicians in charge have a wide experience of one of these two methods and a very limited experience of the other—a large experience of tracheotomy and small experience of intubation, or vice versa. Were it possible to collect the views of a considerable number of authorities having extensive experience of both methods it might be possible to arrive at a correct conclusion.

The other means by which we may attempt to make a correct valuation is by comparing the total results obtained in large hospitals in which tracheotomy is the "operation of choice" with the total results in hospitals in which intubation is the routine method. But here we meet with several difficulties. The published reports of many hospitals do not give the total results; too often the case-mortality rates following operation are calculated after excluding cases "moribund on admission" or cases in which the patient has "died within twenty-four hours (or forty-eight hours) of operation." And as frequently the number of such exclusions is not stated these statistics are of no value for our purpose.

Comparison of Results

In the hope of contributing something to the evidence on which an opinion of the relative value of these two operative methods can be formed, I propose to give the total results obtained in the Belfast City Fever Hospital, Purdysburn, since its opening thirty years ago. These figures include all the cases of laryngeal diphtheria in which operation by any method—(*a*) intubation only; (*b*) intubation followed by tracheotomy; (*c*) tracheotomy only—was performed.

In the sixty-one cases in which tracheotomy secondary to intubation was performed the necessity for this was nearly always caused by failure to retain the intubation tube after very many re-intubations. In a few instances tracheotomy was done in the hope of getting rid of the intubation tube, which could not be dispensed with. The reasons why tracheotomy was chosen in the thirty-three cases were: (1) the trachea was not large enough to take the smallest-sized intubation tube readily; (2) so much oedema was present that there did not appear to be any prospect of an intubation tube being retained; (3) the intubation tube did not fit home comfortably; and (4) in a small number of cases, in the early years, there was no one at hand with the necessary experience of intubation.

TABLE I.—*Results obtained by Intubation and Tracheotomy*

Method	Cases	Deaths	Mortality per cent.
Intubation only	951	233	24.7
Intubation followed by Tracheotomy	61	37	60.6
Total	1,012	270	26.6
Tracheotomy only	33	13	39.3
Total, all methods	1,045	283	27.0

TABLE II.—*The Age Periods of Cases with Intubation Only*

Age	Cases	Deaths	Mortality per cent.
Under 1 year	70	35	50.00
1–2 years	230	86	37.39
2–3 „	165	35	21.21
3–4 „	178	24	13.48
4–5 „	132	24	18.18
Over 5 years	176	29	16.45

Now I do not claim that these total results are exceptionally good, but I am very definitely of opinion that they are better than they would have been had we adopted tracheotomy as a routine method of treatment. Before the opening of Purdysburn Fever Hospital I had, in the old Belfast Fever Hospital, a considerable experience of tracheotomy. The figures given by that experience are not available unfortunately, as most of the records have been destroyed.

As stated, I have found difficulty in getting figures of total results obtained in other places, but I should like to give you the excellent figures in a large series of such cases treated mainly by intubation in Melbourne Infectious Diseases Hospital. I have recently received these figures through the kindness of Dr. F. V. G. Scholes, medical superintendent. Dr. Scholes's figures are:

TABLE III.—*Results obtained at Melbourne Infectious Diseases Hospital*

Method	Cases	Deaths	Mortality per cent.
Suction only	11	—	—
Intubation only	1,685	271	16.1
Tracheotomy	209	126	60.0
Total operation cases	1,905	397	20.8

These are total figures without any exclusions. The series is a very large one, and I think you will agree that the results are exceedingly good.

* Read in opening a discussion at a meeting of the Section of Hygiene and Public Health at the Annual Meeting of the British Medical Association, Belfast, 1937.

Can such results be obtained if tracheotomy is adopted as the routine method of treating such cases?

Dr. Scholes does not state in what proportion of the cases tracheotomy was performed secondary to intubation.

How the virulence of diphtheria as met with in Australia compares with that obtaining in Britain I do not know. In the first edition of his book (1920) Dr. Scholes gives a very careful analysis of 19,150 cases of diphtheria treated by him with a case mortality rate of 4.2 per cent. A striking point is that of these 19,150 cases over 50 per cent. were admitted to hospital within forty-eight hours of the onset of the disease. I am sure all of us who are called upon to treat large numbers of cases of diphtheria must envy him this.

The Case for Intubation

The main objections sometimes made to intubation are: (1) the danger of the pushing down loose membrane with consequent obstruction to the breathing; (2) the danger of the tube being coughed out and suffocation occurring before it can be replaced. The risk of the former is very slight. It did occur, however, in three cases in O'Dwyer's first 200 cases. In two of these three removal of the tube was immediately followed by the coughing up of the obstructing loose membrane. I have met with this trouble in a few cases, but in all of them the loose membrane was coughed up on withdrawal of the tube. The second of these objections is a more serious one, which may lead to disaster. In all cases in which coughing up of the tube has become a habit, and where many re-intubations have been required, it is necessary to have within call someone capable of quickly replacing the tube, and in some of these cases it will be found safer to perform a secondary tracheotomy.

Again, it is sometimes urged that without previous experience intubation is much more difficult than tracheotomy and less likely to be successful under such circumstances. This is true, but the necessary technique is easily and quickly gained. When anyone who has not had experience of intubation is making his first attempt to introduce an intubation tube he should always have standing by someone of experience ready to take over and complete the operation.

Much of the disappointment with the results in intubation has been due to the use of instruments and tubes which are not of good pattern. This was emphasized long ago by Professor Northrup, who urged that if only tubes, etc., of O'Dwyer's approved type were employed intubation would quickly supersede tracheotomy. My own experience confirms this.

The position in which the child is placed for the operation is most important. The best position is as near as possible to the edge of a low cot, so that the operator can stand almost directly over the patient. Attempts to insert an intubation tube in a struggling child on an operating table at the usual height will be found exceedingly difficult by anyone who has not had much experience.

Conclusion

From inquiries I have been able to make it would appear that intubation is now the method favoured in the United States, Canada, Germany, and Australia, and that primary tracheotomy is done in but a comparatively small proportion of these cases, and then only because for some reason intubation was considered unsuitable. We all know that the late Dr. Claude Ker, with his extensive experience in Edinburgh Fever Hospital, was an enthusiastic advocate of intubation.

I am at present convinced that intubation has many advantages over tracheotomy in laryngeal diphtheria requiring operation.

I shall be very grateful to anyone who will be kind enough to send me reports of results obtained in any considerable series of consecutive cases treated by either method.

Clinical Memoranda

Acute Torsion of the Gall-bladder

This condition is, I think, of sufficient rarity to warrant a record being made of the case, which occurred at the Hertford County Hospital some few weeks ago.

CASE REPORT

The patient, a woman of 79, was admitted to the private wards of this hospital as an emergency on December 29, 1936, with a history of pain encircling the body at the level of the epigastrium which began four days previously. She had felt sick but had not vomited, and the bowels had been open. There had been no jaundice, but the urine was dark, though no change had been noticed in the colour of the stools. On the first day of the illness there was generalized abdominal tenderness, slightly more in the right hypochondrium than in the left, but no other physical signs.

The next day the pain was definitely on the right side, and was also felt in the right shoulder. The abdomen showed some general distension, and a tender fluctuant mass was evident below the right costal margin. The pain was better the following day, and the bowels were again open. No vomiting occurred, but flatulence was troublesome. The patient was given an enema, with poor result.

On December 29, the fourth day, the pain was worse again and the temperature rose for the first time to 100° F. The swelling was now the size of a small orange, and it was possible to get one's fingers between it and the costal margin. She was then admitted for operation. The abdomen was opened with a Kocher's subcostal incision; this gave a very good exposure of the gall-bladder, which was found to be very distended and black in colour. It appeared to be attached to the liver by a short mesentery in its lower part, the fundus being freely movable and unattached. The cystic duct had three complete twists in a clockwise direction. The gall-bladder fissure of the liver was closed. Cholecystectomy was performed, and the patient made an uninterrupted recovery.

COMMENTARY

Upon consulting the literature relevant to the condition I find that Rendle Short and Paul (*Brit. J. Surg.*, 1934, **22** 301) give a very complete account of it, with a survey of all the recorded cases, fifty-three in number, of which only twelve were recorded by British surgeons. Since then seven fresh cases have been reported.

I have not been able to examine the accounts of all the fresh cases, but in those which I have studied the similarity of the histories is striking and seems to indicate that, in spite of its comparative rarity, pre-operative diagnosis should be possible. The cardinal points seem to be the local symptoms and signs of acute cholecystitis, but with no rise of temperature or pulse for some days, no evidence of jaundice, and the sudden, rapid development of a palpable tumour in the gall-bladder region.

In all cases the gall-bladder is not situated in the fissure, but is attached to the liver by a short mesentery; this may possibly be explained by the fact that the con-

dition occurs pre-eminently in elderly women in whom, it may be supposed, the gall-bladder attachments have become loosened. The condition does not appear to have any particular relation to the presence of inflammation or gall-stones, as these have only been found in a small percentage of cases.

The specimen from the above case has been preserved in the Royal College of Surgeons' Museum in London, where there is only one other specimen.

The prognosis is favourable, and the mortality is given as only 16 per cent., which is very good when the age group of the condition is taken into consideration.

I am indebted to Mr. H. Ernest Griffiths, surgeon to the Hertford County Hospital, and to Dr. H. S. H. Gilmer, anaesthetist to the same hospital, for permission to publish this case.

HUGH R. ARTHUR, M.B., B.S.,
Hertford County Hospital. House-surgeon.

Strangulated Ovary in a Hernia in a Child Aged Three Months

We have been prompted to give a report of this case in view of its rarity. A careful survey of the literature reveals no case of a similar nature in so young a patient.

On March 6, 1937, one of us (M. H. F.) was called in to see a female child aged 3 months. The mother stated that she noticed a swelling, which had appeared in the right groin earlier in the day. According to her statement this swelling was increasing in size. The baby's health had never been satisfactory since birth, although it had then appeared normal. She had always been subject to recurring attacks of sickness, which did not seem to be due to the artificial feeding.

On examination a swelling the size of a walnut was noticed in the groin, and on palpation was so tender as to cause the child to cry. The swelling was soft, and appeared to contain fluid. It was extremely tender to touch, and to all appearances suggested an abscess.

The child was admitted to the Kingston Victoria Hospital later in the day, and was operated on by one of us (M. L.). On exposure of the inguinal canal a black mass presented itself. It was surrounded by a sac. This was incised, and it was noticed that there was no fluid contained within it. At first we thought this was strangulated bowel. On enlarging the opening of the internal ring it was found that this mass was attached to a mesentery, which extended down into the pelvic cavity. A careful examination was made to ensure that the intestines were normal. The mesentery of the strangulated mass was ligatured and the tumour removed. The defect in the inguinal canal was remedied and the incision sewn up.

For the first few days after operation the baby was fed on one-fifth normal glucose solution and subcutaneous salines. The child eventually made a very satisfactory recovery, and has put on weight regularly.

Microscopical examination showed that the tissue removed consisted of degenerated ovary, largely replaced by altered blood.

It is worthy of note that since the operation the attacks of sickness have ceased. This has suggested that these bouts were probably due to torsion of the ovary. This cause of sickness in a young child is so uncommon that it is unlikely to occur to the mind when arriving at a diagnosis. We should be pleased if anybody could provide us with details of any case they have seen of a similar nature.

We are both indebted to the nursing staff of the Kingston Victoria Hospital for the excellent manner in which they undertook the care of this case.

M. H. FRIDJOHN, B.Sc., M.B.
London. MAURICE LEE, F.R.C.S.

Reviews

OPERATIVE SURGERY

Operative Surgery. By J. Shelton Horsley, M.D., LL.D., F.A.C.S., and Isaac A. Bigger, M.D. Two volumes. Fourth edition. (Pp. 1,387; 1,259 figures. 63s. net.) London: H. Kimpton. 1937.

It is over seven years since we reviewed the third edition of Dr. Shelton Horsley's *Operative Surgery*, which first appeared in 1921, and we welcome a fourth edition, which brings this valuable book into line with modern developments. It now consists of two volumes and comprises nearly 1,400 pages and over 1,250 illustrations. In the preface to the new edition the senior author (for the work now appears under the title Horsley and Bigger) states that the gravitation of surgery towards various specialists decided him against preparing a fourth edition for his publishers unless he had associated with him well-qualified practitioners of certain specialties. Dr. Isaac Bigger, who is professor of surgery in the Medical College of Virginia and the co-author with Dr. Horsley, is responsible for chapters on the surgery of the neck, thorax, breast, hernia, sympathetic nervous system, and certain of the operations upon the extremities. Drs. C. C. Coleman, Austin I. Dodson, John S. Horsley, and Donald M. Faulkner, who all hold teaching appointments in the Virginia Medical College, write on their specialties, which are respectively neurological surgery, urology, plastic surgery, and orthopaedics. Dr. Guy W. Horsley has assisted in the preparation of the chapter on proctology. The fourth edition follows the same general lines as its predecessor, and as the senior author points out does not attempt to be an encyclopaedic work but rather a description of methods of practice which have been used by him or which appear to him to be the best for the particular lesion under consideration.

Throughout his work Dr. Shelton Horsley looks below the surface for the underlying principles, the various biological processes that attend and follow surgical operations, and he is perhaps at his best as an exponent of the principles of surgical practice; for this reason the chapters on "general considerations," "surgical drainage," "principles underlying operations for malignant tumours," and "complications of operations, infection, shock, and haemorrhage" are some of the best in the book. Dr. Horsley believes that the particular technique for any operation should be one chosen not solely because it appeals to a mechanical sense but because it is biologically correct.

"Real progress in surgery lies not so much in cultivating the art of surgery and in striving after manual dexterity, which is important but can be acquired in a few years, as in the study of biological principles that concern function, nutrition, metabolism, and repair of tissues, and in the thoughtful application of these principles to every operation and to every method of surgical treatment."

We are glad to note that in the section on the surgery of the stomach the Bilroth I type of procedure, which we have long regarded as the most logical and in every way the best type of gastric resection, is advocated by the author on the ground that the duodenum is the natural receptacle for the gastric contents. It is also pleasing to see the Sistrunk operation for thyroglossal cysts and fistulae described, because when properly performed this procedure is very successful, and recurrences from unsuccessful and incomplete operations for these lesions are by no means infrequent.

It is obvious that this book is the outcome of a labour of love on the part of one who is deeply interested in the fundamentals of the science and art of surgery, and who in this recent edition has recorded only what from his mature experience of surgical practice he believes to be of real value. He has been fortunate in his collaborators, but we suspect that they have been even more so and that Dr. Shelton Horsley's was the spirit that has inspired their practice as well as their contributions. The type and illustrations are good and make the volumes attractive and readable. This is a work which all thoughtful practitioners of surgery should have on their bookshelves for reference. It will prove an inspiring guide also to the young surgeon who is beginning to apply his art, for it constantly reminds him of the science which lies behind the art.

A GUIDE TO OPHTHALMOLOGY

Diseases of the Eye. A Textbook for Students and Practitioners. By Eugene Wolff, M.B., B.S., F.R.C.S. (Pp. 234; 120 figures; 5 coloured plates. 15s. net.) London: Cassell and Co. 1937.

A book like this, which runs to 225 pages and contains five coloured plates and 120 illustrations, some of them occupying the better part of a page, is more in the nature of an illustrated guide to ophthalmology than a textbook in the narrower sense. Many of the illustrations serve their purpose admirably, though the predominance of anatomical drawings places an undue emphasis on the significance of anatomy in clinical ophthalmology, while not a few of the illustrations on other aspects could with advantage be improved or altogether omitted. Fig. 28 is a case in point. The uninitiated would be led to believe from it that the fundus is examined not through the sight hole of the ophthalmoscope, but by its metal frame. A matter of minor significance is the irritating array of references to chapter and verse on the immediate origin of most of the drawings, which are, after all, essentially standard illustrations. The text matter differs from that of other small books on ophthalmology in discussing unusual conditions in unnecessary detail. It is surely not a matter of interest to the student to be told that detachment of the retina may occur in coloboma of the choroid —a fact, if such it is, of which many an ophthalmologist, including the reviewer, was unaware. That retinitis pigmentosa should be dealt with in almost the same number of words as are given for angioid streaks, and in fewer than are devoted to keratoconus, betrays again a disturbing lack of balance. The information contained in the book is, however, sound and up to date, the teaching is orthodox, and its modernity is its most valuable feature. A more critical revision of the text with a view to making it a more consistent unity would not have been out of place. Important as balance is in any publication, it is the very essence of an elementary exposition.

PUBLIC HEALTH CONGRESS PROCEEDINGS

The papers and discussions at the Public Health Congress held in November last at the Royal Agricultural Hall, Islington, have been published, and make a closely printed volume of nearly 600 pages (Congress Organizing Council, 13, Victoria Street, London, S.W.1). We gave some account of the congress at the time (*British Medical Journal*, November 28, 1936, p. 1101), but it was impossible to cover the very wide range of subjects taken in simultaneous sessions, besides which many of the papers were of interest from the point of view of sanitary engineering rather than of medicine. To mention only a few of the subjects dealt with, they included the control of imported food, occupation as a therapeutic agent, park planning in relation to public health, the relation of orthopaedics to health and hospital services, and a whole series of papers on water supplies, and another series on mental welfare. When framing the agenda the council decided to emphasize the importance of the dental services, and also to focus attention on the need for improving the physique of the nation, particularly of children and adolescents, with the result that three useful discussions took place, one of them arranged by the British Dental Association and the other two by the council itself. It is useful also to have the full text of Sir Arthur MacNalty's paper, in which he gave a historical outline of the rise of the medical officer of health. It is always a moot point whether the more valuable thing about a congress is the actual meeting or the aftermath of the printed record, but certainly, as Sir Frederick Willis, the chairman of the Organizing Council, says in the foreword, the proceedings of this congress are of growing utility to public health administrators. The papers are nearly all by experts in their respective subjects, and contain useful information and opinion, while the reports of the discussions, discursive as they often are, yield some little reward to the patient eye.

"THE PROPER STUDY OF MANKIND"

Man's Mind and Behaviour, and *Biology of the Human Race*. By H. G. Wells, Julian Huxley, and G. P. Wells. Volumes 8 and 9 of Science of Life Series. (4s. net each.) London: Cassell and Co. 1937.

In the first of these concluding volumes of the series a lucid explanation of the anatomy and physiology of the human brain precedes a masterly exposition of psychology. To deal adequately with the last-named subject in simple language is no easy matter, but the authors have been remarkably successful in doing so. Hypnosis, automatism and mediumship, neurasthenia and psycho-analysis are made intelligible to the layman. The final chapter touches on borderland science and the question of personal survival. The authors are nothing if not consistent; they therefore view personal survival in the cold light of science and reject it. "The idea of any sort of individual immortality runs flatly counter to the idea of continuing evolution." They are human enough to soften this statement by suggesting that individual immortality is not desirable. "Every man makes his experiments, learns and teaches his lesson, and hands on the torch of life and experience. The bad habits he has acquired, the ineradicable memories, the mutilations and distortions that have been his lot, the poison and prejudice and decay in him —all surely are better erased at last and forgotten. A time will come when he will be weary and ready to sleep." With the further conclusion that "it is the young who want personal immortality, not the old" many readers will probably disagree.

Biology of the Human Race deals principally with the health of *Homo sapiens* and the trend of social evolution. The question of health is considered from every aspect, and the problem of diet is fully discussed. In an excellent commentary on the uses and dangers of drugs, tobacco and alcohol are described as "refuges from the physical and nervous frustrations of modern life." Visualizing the possibility of future reliance on simpler and purer substances, the authors allude to the experiment of Professor Embden of Frankfurt, who produced muscular (and in many cases mental) invigoration by administration of acid sodium phosphate. With regard to the trend of social evolution the biological significance of war is discussed, and it is suggested as a possibility that the cumulative effect of the stresses which a future conflict would involve might produce "the most disastrous deteriora-

tions of the never very strong morale of the human ant-hill."

The reader of these volumes cannot fail to be impressed by their breadth of outlook and their clarity of exposition, or to marvel at the industry and knowledge of the authors. The whole series constitutes a monumental work, although the books are compact and easy to handle. The reading of one volume whets the appetite for the remainder.

BLOOD CULTURES

Blood Cultures and their Significance. By Hildred M. Butler, B.Sc. (Pp. 327; 3 figures. 15s.) London: J. and A. Churchill. 1937.

In the past the use of blood cultures in the diagnosis of bacterial infections has been largely neglected. Even to-day this method of investigation is not exploited to its full, at any rate in this country, and the prognostic value of blood cultures is but dimly appreciated. There have been several reasons for this. Only too often the methods employed have been inadequate, and the high percentage of negative results which this has entailed has discouraged the clinician from calling on the laboratory for this service. And the failure of the laboratory to recognize that blood cultures should be carried out quantitatively in many instances in order to measure the extent and persistence of the bacteriaemia has held back recognition of their prognostic value.

The recent monograph by Miss Hildred M. Butler of the Baker Institute of Medical Research, Melbourne, on the subject of blood cultures and their significance should go a long way towards popularizing this method of investigating bacterial disease. It should be of value not only to the laboratory worker, but to the clinician also, for by reference to this book he will be able to find out when and how this method of investigation will be of help. Miss Butler has had a considerable experience of cultivating bacteria from the blood in a variety of conditions, she knows the literature of her subject, and furthermore she has the faculty of presenting her matter clearly and succinctly. There is never any dubiety about what she has to say. The first three chapters of the monograph deal with general matters such as the use of blood cultures in routine and research work, the types of blood-stream invasion, the making of blood cultures and their interpretation. Then in successive chapters the author considers the application of this method of investigation to the diagnosis and prognosis of specific infections, enteric fever, *B. coli* infections, undulant fever, puerperal fever, and so on, indicating wherever necessary any modifications in the general technique that may be required for the cultivation of a particular bacterium. Each chapter possesses a list of references, which constitutes a valuable part of this monograph.

We find little but praise for this excellent book, which is a real addition to the bacteriologist's library. One small point might perhaps be mentioned, and this concerns the use of quantitative blood cultures. Miss Butler very rightly draws attention to the value of quantitative blood cultures in attempting to assess the severity of the infection, and early in the book she points out the very serious import of repeatedly positive blood cultures with a rising count. It is, of course, by the use of repeated quantitative blood cultures that the distinction between an intermittent and a persistent bacteriaemia—or what is more commonly termed a septicaemia—is made. But in some of the later chapters—those on streptococcal and staphylococcal infections, for instance—she does not make it abundantly clear that it is only on the results of repeated quantitative blood cultures that one can base a prognosis.

Notes on Books

Atlas der Augen krankheiten, by Professor RUDOLF THIEL of Frankfurt (Leipzig, G. Thieme, R.M.24), attempts to cover the whole range of ocular pathology in 189 pages containing 420 illustrations. These are spread systematically over the different tissues of the globe and orbit, and the illustrations include diagrams showing the various steps of the more common operations. As far as scope is concerned the book is therefore as full as could be. The descriptions of the illustrations are interspersed with a number of discussions of general principles, and these greatly add to the value of the text. In a work of this kind there are inevitable omissions, though surprisingly few of any importance. The drawbacks are acts of commission, as shown by ill-chosen examples of disease and a more than occasional introduction of matter of minor importance. The illustrations are on the whole satisfactorily done, though some few leave much to be desired. The inclusion of illustrations of appearances as seen with slit lamp and red-free ophthalmoscopy are indicative of a modernity in outlook. Apparently no pains have been spared to make the book as economical and as useful as a work of this nature can be, for the illustrations that are not in colour are those in which this is not essential. The therapeutic part of the atlas—the illustrations of operations and the occasional note on the treatment of a condition illustrated—could with advantage have been omitted, as these are subjects best done fully or not at all.

An important member of the "Year Book" series is the contribution entitled *The 1936 Year Book of General Therapeutics*, edited by Dr. BERNARD FANTUS and Dr. S. J. NICHAMIN, both members of the staff of the Cook County Hospital, the source of the valuable articles on therapy which have been appearing for some time past in the *Journal of the American Medical Association*. The subjects selected for annotation are well chosen, and the occasional editorial comments are shrewd and valuable. Classification under such headings as "Restoratives," "Tissue Alterants," and "Toxicology" is used to facilitate ready reference. The book is published in this country by H. K. Lewis and Co. at 10s. 6d.

A useful service on behalf of those concerned with the administration of the pension system for mental hospital workers has been performed by Messrs. L. T. FELDON and GEORGE GIBSON in their little book *Asylums Officers' Superannuation Act, 1909, and Associated Acts: With Notes and Comments* (3s. 6d.). There is a foreword by the Right Hon. Arthur Greenwood, M.P., who was Minister of Health in 1929–31.

Preparations and Appliances

IODINE TABLETS

Iodotab (Clay and Abraham Ltd., 87, Bold Street, Liverpool) is a preparation of iodine (1/10 grain) made up in tablet form with dried milk. The tablets provide a method of administering small doses of iodine much more convenient for patients than is the usual method of measuring drops of Lugol's solution into milk.

SULPHONAMIDE P

Allenbury's Sulphonamide P is a preparation of sulphanilamide or *p*-aminobenzene sulphonamide. The preparation is in tablets of 0.5 gramme for oral administration. This drug has risen rapidly to fame as a specific against haemolytic streptococci, and fresh evidence regarding its action is appearing almost daily. Messrs. Allen and Hanburys Ltd. (Bethnal Green, E.2) have prepared a useful leaflet summarizing the present state of knowledge regarding the actions of the drug.

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HORMONES AND ENLARGEMENT OF THE PROSTATE

The probable relation between prostatic enlargement and the activity of the sex glands has long been suspected, but it is only recently that this suspicion has been strengthened by experimental evidence, of which the most interesting is the effect of oestrone on the prostate. In the mouse, monkey, and dog repeated injections of oestrone lead to fibromuscular overgrowth and epithelial hyperplasia in the prostate, not only in the glandular acini but also in the urethral epithelium, collecting tubules, and uterus masculinus. The essential changes, according to Burrows, are an arrest of secretion and epithelial hyperplasia and metaplasia: the single layers of columnar cells are transformed into stratified and rapidly desquamating epithelium. The glandular system of the prostate is changed under the action of oestrone into a collection of cysts filled with epithelial cells and debris, and separated from one another by fibrous trabeculae. This histological picture is not readily confused with that presented by a "spontaneous" prostatic adenoma, and does not immediately support the hypothesis that human prostatic enlargement is to be attributed to a prolonged stimulation of this organ by some oestrogenic substance elaborated in the male and released for such action when there is a relative insufficiency of male hormone. Nevertheless, this striking effect of oestrone must be further investigated, because it may well prove to be an essential link in a chain of events leading to "spontaneous" hypertrophy.

The experimental study of such hypertrophy of the prostate is rendered almost impossible because it does not appear in most laboratory animals. In a recent contribution Zuckerman and Groome[1] observe that the dog is the only familiar experimental animal known to suffer from the condition naturally. The types of simple enlargement of the dog's prostate hitherto described are glandular hypertrophy proper, pseudo-hypertrophy due to increase of interstitial tissue, cystic degeneration, enlargement due to obstruction, and purulent inflammatory enlargement. In a careful study of nine prostates of mature dogs these authors found that only one could be regarded as normal in size (11 mm. transverse diameter by 8 mm. dorso-ventral diameter) and histological structure. Seven of the remaining eight were much enlarged, the increase in size being the result of simple glandular hyperplasia: the extent of the increase can be judged from the fact that the average measurement of these seven glands was about 37 mm. transverse diameter by 30 mm. dorso-ventral diameter. Consideration of these enlarged glands seemed to point to the cause being excess of male hormone, but it was noteworthy that in this type of enlargement there was no excess of interstitial tissue in the corresponding testes. That the condition could not be caused by the action of oestrogenic substances was manifest from the vastly different histological pictures presented by the prostatic enlargement induced by such substances. In only one animal, the remaining one of the nine, was the histological picture identical with that of the oestrogenic enlargements. In this animal there had been during life evidence suggestive of oestrogenic activity—for example, hypertrophied nipples, stratification of the urethral epithelium, swollen penile sheath—so the prostatic enlargement (80 mm. by 60 mm.) in this case was apparently the result of enhanced oestrogenic stimulation. That excess of male hormone may lead to increase in the size of the prostate is supported by an old observation of Hobday's that regression of the enlarged gland in the dog follows castration. It would seem, then, that excess of either male or female hormone may end in "spontaneous" prostatic hypertrophy, but that the histological changes are different.

Application of this knowledge to the problem in man is premature, in spite of some favourable reports of the clinical trials of male hormone. Cunéo[2] has recently recorded his results with the administration by mouth of a total extract of testicle in cases of prostatic enlargement in man. He is at pains to show that in man the hypertrophy develops in the Müllerian part of the gland, and attributes this to the unbalanced action of female sex hormones consequent upon the diminished action of the male hormones. In a series of twenty-three cases he claims to have obtained considerable functional improvement, and in one or two believes the gland to have become smaller. In some cases there was a marked diminution in the volume of residual urine and in others catheterization could be discontinued. Cunéo is of opinion that hormone treatment should be instituted at an early stage; it should be regarded as a preventive measure and not in any sense as a substitution for operation in advanced cases. If must be con-

[1] *J. Path. Bact.*, 1937, **44**, 113.

[2] *Bull. Acad. Méd.*, Paris, 1936, **116**, 434.

fessed that the presentation of the clinical results is not impressive, but the method may deserve trial in early cases, although in these it will probably be difficult to know if the treatment is producing any effect at all. Further work will determine whether hormone therapy of prostatic enlargement can be conducted on a rational basis.

INDUSTRIAL HEALTH

The report of the Chief Inspector of Factories for 1936[1] differs in some respects from its predecessors, for it has been thought best to omit reference to certain controversial subjects because of their connexion with the Factories Bill then under consideration by Parliament. As an alternative the question of factory accidents is discussed at greater length than usual. The number of these accidents is about 18 per cent. greater than in 1935, and in fact there has been a continuous rise ever since 1932. The rise is due chiefly to increase of employment, and it is found that if allowance is made for the numbers employed there has been a slight but steady fall in accidents from year to year since 1924, and especially in respect of fatal accidents. Nevertheless, the immediate effect of increased employment is to cause a more than proportionate increase of accidents, owing to the engagement of inexperienced young workers and of unemployed older workers who have lost some of their skill. The Chief Inspector, Mr. D. R. Wilson, points out in his introductory chapter that the accidents were also due in part to the installation of new and not properly fenced machinery, and he insists that this must be prevented, the protection of the worker being imperatively the first consideration. He is greatly troubled by the excess of accidents experienced by juvenile workers, and this subject is discussed in some detail in a subsequent chapter of the report. A special investigation, made in seventy-seven factories, indicated that the firms were responsible for over a fourth of these accidents to juveniles, and the workers themselves for nearly half of them. The workers experienced by far the largest proportion of accidents in their first week at the factory, the frequency then being about five times greater than in their fifth week, so it is evident that more education, training, and supervision are required. To this end some employers allowed the juveniles to settle down in their new surroundings by giving them easy work at first. Others gave them a booklet containing safety hints which they had to read on first joining the factory. At one engineering works the juvenile was never set to work at a machine until he had been carefully instructed in its safe operation, and then only on bench machines with danger points marked in red. In an engineering works where special attention was paid to supervision and training the accidents to young persons were less than half as numerous as those to adults, though industries in general show an excess of over 30 per cent. For these and other reasons it is clear that a very great reduction of accidents can easily be brought about by education of the young in accident prevention. In a few isolated cases this education is begun in training schools, but it ought to be extended systematically to all schools if it is to achieve its object fully.

The chapter on health by the Senior Medical Inspector, Dr. J. C. Bridge, runs on the usual lines. It is stated that cases of lead poisoning were the lowest on record (thirteen fatal and 150 non-fatal), and a steady diminution continues in the severity of the cases notified. The most prolific cause of the poisoning is still the painting of buildings. Anthrax was responsible for thirty cases in all, but only one of them was fatal. Epithelial ulceration, though less prevalent than in previous years, was responsible for twenty-seven deaths and 115 non-fatal cases. About two-thirds of these were due to pitch and tar, and the remainder to oil. A special investigation was made of cases of cutaneous epithelioma in cotton-mule spinners. Since 1923 the number of such cases notified to the Factory Department has been 918, of which 305 were fatal. The minimum time of employment for the disease to manifest itself was found to be thirteen years and the maximum seventy years, the most frequent time being forty-five to fifty-five years. In 1936 the cases of carbon monoxide poisoning numbered eight fatal and seventy-eight non-fatal. They showed a considerable increase on the numbers in 1935, especially those from blast furnace gas, but no explanation of this increase is offered. Cases of poisoning by other gases and fumes, taken as a group, were considerably less numerous than those from carbon monoxide, and call for no special mention. A much more important cause of industrial sickness is silicosis. The data recorded in the report relate only to fatal cases, and during the year sixty-four deaths from silicosis were reported to the Department, while there were sixty-two deaths from silicosis combined with tuberculosis. The total figures for the last seven years indicate that not far short of half the deaths were incurred in the pottery industry, and a quarter of them among sandstone workers. In a few instances death supervened after less than two years' employment, though the average duration was thirty-three years. Asbestosis, or asbestosis combined with tuberculosis, was responsible for eleven deaths

[1] Cmd. 5514. London: H.M. Stationery Office. 1937. (2s.)

in the year. This disease is much more rapidly fatal than silicosis, for it may kill after less than a year's exposure, while the average period is about eleven years. The records of dermatitis in the report are very imperfect, for they consist only of cases voluntarily notified to the Department. Such cases numbered 1,771 in 1936, a considerable excess on previous years. The largest number was incurred in the engineering industry, dyers and painters coming next. Oil was the most frequent causative agent, closely followed by alkalis. In spite of the increase in reported cases the Chief Medical Inspector states that suitable measures for protection are becoming more widely known, and that the use of "barrier substances" for the protection of the skin when exposed to irritants has increased.

MONOCYTIC LEUKAEMIA

Much work on man and animals goes to suggest that leukaemia is a neoplastic process. We might therefore expect to find varieties of leukaemia corresponding with every different kind of white blood cell. Until recently haematologists have recognized only myeloid leukaemia, involving the granulocytes and their precursors and lymphatic leukaemia involving the lymphocytes. In chronic myeloid leukaemia neutrophil polymorphonuclear cells and myelocytes usually predominate, but in rare instances the majority of the cells may be eosinophil or even basophil. In multiple myelomatosis, which has close affinities to leukaemia, the tumours are usually composed of plasma cells, and these may sometimes appear in the blood stream, producing a plasma-cell leukaemia. In the last few years an increasing number of case reports have appeared under the title of monocytic leukaemia, and Osgood[1] has now published an account of monocytic leukaemia based on more than a hundred reports in the literature, six personal cases, and a study of blood smears in thirty-two cases and sternal marrow in four. It is estimated that 62 per cent. of all cases of leukaemia are myeloid, 33 per cent. lymphatic, and 5 per cent. monocytic, an incidence which corresponds with the normal percentage distribution of the cells in the blood. Like other forms of leukaemia, monocytic leukaemia is twice as common in males as in females. It may occur at any age. Characteristic clinical findings are swelling of the gums, sometimes going on to gangrenous stomatitis, purpura and haemorrhages, pallor, weakness, and fever; but these symptoms must be correlated with the fact that the majority of cases are acute and the average duration of the disease is only five and a quarter months. Enlargement of the lymph glands and the spleen is less frequent and less considerable than in other forms of leukaemia, and in a number of cases the spleen is not palpable. Enlargement of the liver is almost as common as enlargement of the spleen. Localized tumours of cells of the monocyte series sometimes occur in the skin or in the viscera, and in a number of cases there are aleukaemic phases which render diagnosis difficult. Unusual features in the case recently reported in this *Journal* by Stewart Smith[2] were the high total white count, the great size of the spleen, and the mildness of the anaemia. In the blood stream all intermediate stages may be seen between the typical mature monocyte and primitive precursors or monoblasts. These primitive cells are hard to distinguish from myeloblasts or lymphoblasts, and the chief point of difference is the more frequent occurrence of fine diffuse azurophil granules in the cytoplasm. Myeloid leukaemia, lymphatic leukaemia, and multiple myeloma breed true, and cases reported as mixed-cell leukaemia can usually be explained on other grounds. The separation of monocytic leukaemia has hitherto been by no means so clear-cut, and pathologists have been inclined to feel that the histological changes in cases regarded clinically as monocytic leukaemia were hardly distinguishable from those of myeloid leukaemia. There is nevertheless a good deal of evidence that the monocyte is a cell of different lineage from the granulocyte, and, as suggested by Stewart Smith, more intensive study may resolve the difficulties in morbid anatomy. For the general clinician perhaps the most important point at present is that, owing to the presence of aleukaemic phases and the frequent absence of splenomegaly, monocytic leukaemia may closely mimic pernicious anaemia, appearing in the guise of an unexplained severe anaemia which failed to respond to liver treatment.

[1] Osgood, E. E. (1937). *Arch. intern. Med.*, **59**, 931.

EXPERIMENTAL NEPHRITIS

Despite numerous researches on nephritis during the last twenty or thirty years there still remains doubt as to the cause of the disease. That it may be due to a type of anaphylactic phenomenon is suggested by the fact that it is related to infective conditions elsewhere in the body, although organisms are not actually found in the kidney. The nearest approach to the clinical syndrome of nephritis which has yet been produced in animals is the renal lesion which results from the injection of so-called nephro-toxic serum. Researches on these lines have recently been carried a stage further by Smadel and others[3] at the hospital of the Rockefeller Institute for Medical Research. They have prepared a nephro-toxic serum by immunizing rabbits with a suspension of perfused rat kidney. When the rabbit serum is injected intravenously into rats varying degrees of nephritis develop. If large amounts of serum are given at frequent intervals a rapidly fatal nephritis occurs, with albuminuria and increase of blood urea. Smaller quantities of serum, either in single or divided doses, produce lipaemia, plasma protein deficiency, oedema, persistent albuminuria, and casts. In some of the animals there was a progressive fall in the power to "clear" urea, and finally marked retention of urea, hypertension, and uraemia. Haematuria was as a rule only encountered if an anaphylactic reaction followed the introduction of the serum, and this was found to be associated with glomerular thrombosis. Histologically the diseased kidneys showed changes closely resembling those in human nephritis. In the acute phase there is injury to both glomeruli and tubules. The

[2] Smith, G. Stewart (1937). *British Medical Journal*, **2**, 1.
[3] *J. exp. Med.*, 1937, **65**, 527, 541, 557.

former are enlarged and anaemic as a result of swelling and thickening of the intercapillary substance, the tubular epithelium becomes degenerated, and the tubules may be dilated with hyaline casts. The chronic changes arise from those of the acute phase, proliferation of the cells of Bowman's capsule being followed by progressive fibrosis of the glomerulus. Dilatation, atrophy, and hyperplasia appear in various groups of tubules, and generalized vascular lesions are found. The authors differentiate clearly the fibrin thrombosis of glomerular capilliaries which occurs in non-specific anaphylaxis from the changes due to the specific nephro-toxin in the animals with chronic nephritis. Well-marked vascular lesions were also found in organs other than the kidney, and in some cases there was cardiac hypertrophy. The urinary abnormalities remained until the animals died from three to eleven months after the onset of the nephritis. Finally, the authors demonstrated the specificity of their nephro-toxin by absorption methods. The rats which received an intravenous injection of a suspension of rat kidney shortly before the injection of the nephro-toxin failed to develop nephritis, whereas a preliminary treatment with liver extract did not have this effect. Although these and similar experiments are far from giving a conclusive answer to the problem of the causation of nephritis, they strengthen the theory that it is due to some abnormal reaction between antigen and antibody in relation to an infective illness; and however far we may be from finding a means of preventing the progressive development of nephritis, these researches do at least seem to suggest the direction in which therapeutic measures may be sought.

PROTECTION OF SCIENCE AND LEARNING

The third report of the Academic Assistance Council, now the Society for the Protection of Science and Learning (6, Gordon Square, W.C.1), is a record of which the society and indeed British science and scholarship may well be proud. Nobody doubts that political changes in Europe during the last few years have inflicted fearful suffering upon thousands of individuals. That would not be denied by the statesmen responsible for these changes; what they would urge is that any reform, however vital to the life of a nation, inevitably inflicts hardship upon individuals. But if, as in the present case, the changes themselves seem to many foreigners dangerous, if they involve the repudiation of ideals cherished by many with religious conviction, a temptation to use harsh and rhetorical words is great. From the beginning of the present crisis the Academic Assistance Council has successfully resisted this temptation. It has accepted the actual or impending ruin of scientists and scholars, not in one but in many foreign countries, as an evil to be mitigated, not as an occasion for rhetoric. In its publications it has abstained as completely from political reflections as the Imperial Cancer Research Fund has abstained from railing against the inscrutable ways of Providence in permitting the existence of malignant disease. This report is a record of successful work. Already 465 displaced scholars (including no fewer than 133 workers within the field of medical sciences) have been permanently re-established in one or other of thirty-nine countries. In Great Britain 101 have been established, in U.S.A. 117, in Australia and Canada 13. In addition 320 have found temporary shelter and opportunities to continue their work. This is a fine record. Unfortunately there are still many distressed scholars who have not been relieved, and the general situation shows no signs of improvement. Indeed there is reason to fear that conditions are growing worse. The society is not at present making a public appeal, but its claims to support are manifest. Its active supporters include the names of the following members of the medical profession or workers within the field of medical science: Lord Horder, Sir Frederick Gowland Hopkins, Sir Charles Sherrington, Professor Major Greenwood, Professor Winifred Cullis, and Professor A. V. Hill.

THE CASSEL HOSPITAL

The eleventh medical report of the Cassel Hospital for functional nervous disorders at Swaylands, Kent, is a reminder of the distinguished service the hospital is doing in the treatment of psychoneurosis. The first medical director insisted on an "eclectic" attitude in treatment; this attitude has been sedulously preserved and the hospital has been kept free from the influence of rigid schools. Every member of the staff maintains his independence of approach to his problems, and no two methods are quite the same. It is thus possible after investigation to allot patients to those physicians whose orientation would appear most likely to help the patient. This seems to be an important factor in the success of psychotherapy which is not always recognized. Although it might be convenient if every physician were able to treat every type of neurosis, the reality is that he can no more do so than his colleague in the physical sphere can treat every type of bodily disease. To recognize this principle must make for efficiency. At the same time it is made clear that a patient is under treatment in the Cassel Hospital and not merely treated by a particular doctor, so that if a change becomes necessary or desirable it can usually be made smoothly. Scrupulous care is taken to avoid disturbing the personal relation between doctor and patient, and the Cassel makes the proud claim that in no hospital is the patient less aware of the "administration." The director, Dr. E. W. Anderson, expresses his consciousness of the limitations of psychotherapy. For instance, he believes that no amount of psychotherapy will shorten the course of an endogenous depression, and also that it has no essential place in the treatment of schizophrenia. Full allowance is, however, made for divergent views, and any of his colleagues who disagrees is at liberty to employ any of these methods in these conditions. Another useful custom is that in cases of special difficulty the patient is interviewed separately by each member of the staff before the illness is discussed. This prevents locking up the clinical material into separate compartments, each of which is only known to the doctor in charge of it. It is obviously necessary that every doctor should know something about each patient in order that he may deal with an emergency. Although the staff have very little time for research, four papers

have been published during the year. Work is proceeding on the effects of benzedrine, on anorexia nervosa, and on the heredity of certain forms of neurotic illness. The occupations department has been entirely reorganized and its range of activities greatly enlarged. Plans for a carpenters' shop are being considered. Numerous plays and entertainments have been organized by the patients themselves, and games have been popular as usual. The report contains details of 169 patients discharged during the year 1934.

STRANGEWAYS RESEARCH LABORATORY

Two main divisions of scientific investigations have been conducted by the Strangeways Research Laboratory at Cambridge during 1936. The first was concerned with the growth and development of cells and tissues or with their organization in the embryo. The second related to the action of *x* rays and radium on the living cell, an attempt being continued to analyse the destructive effects of these agencies so that the different emanations might be utilized to increasing advantage in the treatment of cancer. Two small culture rooms were requisitioned for photomicrography, a 16 mm. camera was adapted for taking " speeded-up " films of tissue cultures and other living material *in vitro*, and a projector was bought for showing this size of film. A number of reels, some in colour, were prepared, and a selection of these was used for exhibition to scientific bodies. The old photographic room was added to the physics laboratory, where increased accommodation was required to house the new 200-kV *x*-ray set and accessories provided by the British Empire Cancer Campaign. The constituent parts of the apparatus have been delivered, and the set is now being assembled under the direction of Dr. D. E. Lea. Study of the development centre of mammalian embryos has been carried further by Mr. C. H. Waddington, who has shown that small grafted pieces of the rabbit primitive streak can continue their normal development when transplanted to the rabbit or the chick embryo, whether the grafted piece includes Hensen's node or not. Grafts made into the rabbit blastoderm develop into neural tissue and some mesoderm without exerting any marked effect on the overlying ectoderm of the host, but grafts into the chick, while differentiating in like manner, also caused the overlying chick ectoderm to develop into neural tissue. This is the first demonstration of the activity of organization centres in mammals. Mr. Waddington has also found it possible to induce an extra ear vesicle from the ectoderm of the head of the chick by implanting next to it the wall of the neural tube from the ear region. In collaboration with Miss J. S. Taylor he has shown that fragments of presumptive epidermis from the chick blastoderm of the primitive streak stage implanted into small holes in the primitive streak become incorporated and may be converted into mesoderm, whether they come from the area pellucida or the area opaca. Dr. Honor B. Fell, working on the origin of the avian sternum, has found that in four-day fowl embryos there is evidence that the sternum does not develop from the ribs. At this stage most of the sternal tissue lies ventral to the wing-bud, and does not extend more than the length of two somites behind it. Dr. A. Glücksmann has investigated the effect of mechanical factors on bone development, and has confirmed the view that the effect depends on the stage of differentiation of the skeletal tissue. Pressure on the undifferentiated perichondrium caused the collagenous fibres to disintegrate and a cartilaginous nodule to develop at the site of pressure. Either pressure or tension exerted on the cartilage of the bone shafts led to its degeneration; fibres formed along the lines of tension in continuity with the osteogenic fibres of the periosteal bone. Tension exerted on the undifferentiated perichondrium affected the orientation of the collagen fibres, increased their density, and promoted bone formation. Miss S. Glasstone has shown that whole tooth-germs from rat and rabbit embryos explanted before cusp formation had begun form cusps *in vitro*, proving that cusp formation is independent of any pressure exerted by the jaws on the tooth-germs. Calcification of dentine *in vitro* is more rapid when the proportion of plasma to embryonic extract in the medium is increased and, when glucose is added, calcification occurs in completely uncalcified tooth-germs. Dr. P. D. F. Murray has obtained direct proof that potassium is lost from embryonic hearts allowed to lie in pure sodium chloride solution. Such hearts do not fibrillate in calcium solutions if they have been previously immersed in a solution containing potassium but lacking calcium; it appears probable that they are restored to a normal condition in the second solution by taking up potassium so that they can no longer be caused to fibrillate by calcium. Potassium-poor hearts, if not also calcium-poor, fibrillate more actively in the presence of excess potassium than do normal hearts, so it is suggested that both calcium and potassium fibrillation depend upon a ratio between these ions at the cell surface and the intracellular calcium; the sodium within the cells seems to oppose fibrillation caused by calcium and potassium at their surfaces. In the radiological section the work centred mainly round the problems connected with the control of cell division by radiation. Cellular degeneration of the developing rat retina was shown by Drs. K. Tansley, A. Glücksmann, and F. G. Spear to be produced by very small doses of gamma rays, owing to this interference with cells about to divide unfitting them for mitosis. Dr. D. E. Lea, in collaboration with Drs. R. B. Haines and C. A. Colson, found that gamma radiation, in addition to its lethal action on *B. coli*, had the power of inhibiting division without hindering increase of volume. Thus the organisms grow, and, being prevented from dividing, become longer and larger until the radiation eventually kills them.

THE MEDICAL DIRECTORY: UNCOMMUNICATED ADDRESSES

The Editor of the *Medical Directory*, 104, Gloucester Place, Portman Square, London, W.1, desires to notify members of the medical profession that certain of their number have not communicated to him their present address. He asks that the persons in question will kindly give the information without delay. Otherwise the words " (*address uncommunicated*) " will appear in lieu of an address in the forthcoming 1938 issue.

ANAESTHESIA IN GENERAL PRACTICE

This is one of a series of articles, contributed by invitation

THE STAGES AND SIGNS OF GENERAL ANAESTHESIA

BY

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It is customary to describe four stages in anaesthesia, and this general classification will be adopted in this article. It must be realized, however, that although definite stages are useful for descriptive purposes, in practice they are not sharply defined, but blend into each other. The various phases of anaesthesia will be considered generally, and then as shown in greater detail by the individual anaesthetic agents.

Stage I—Disordered Consciousness

The first action of an anaesthetic on the cerebral cortex is to render its functions more acute but unbalanced. The sensations experienced by the patient will depend largely upon his temperament. There is usually a feeling of well-being or of warmness or tingling in the limbs. The thoughts may become exalted, and delusions are not uncommon. For this reason, among others, a third person should always be present during the induction of anaesthesia. The sense of hearing may be extremely acute, and a conversation, even when carried out in a whisper, may be remembered and misinterpreted. Except for some encouraging remarks from the anaesthetist absolute silence should be maintained during this stage, and the patient must not be touched in any way unless he has previously expressed a desire to hold a nurse's hand. It is a curious fact that with most of the sensations abnormally acute that of pain appears to be dulled from the first. This may be so marked that with some drugs, notably nitrous oxide and trichlorethylene, a definite state of general analgesia may be obtained in some patients.

The physical signs of the first stage of anaesthesia are very variable, and will depend almost entirely on the degree of nervousness shown by the patient. It should be noted that the first stage is profoundly modified by preliminary medication, and if basal narcosis has been induced the first two stages have already occurred before the superimposed general anaesthesia is added. These subjects are dealt with in another article.

Stage II—Excitement

Consciousness is lost at the end of the first stage, and there follows a period in which the patient may exhibit such signs of excitement as muscular movements, phonation, staring eyes, irregular respiration, etc. The reflexes will be brisk, and there may be some laryngeal spasm leading to cyanosis. The blood pressure is usually raised and the pulse slightly increased in rate. These manifestations are thought by some to be due to vivid dreams, while supporters of the electrical theory of anaesthesia impute them to negative impulses passing out from the cerebral cortex over the motor nerves.

The excitement stage is most marked in men, in highly strung patients who have been repressing their emotions, in alcoholics, and in cases where di-ethyl ether is the agent employed. On the other hand, this stage may be unnoticeable in women, in phlegmatic patients, and in cases where heavy premedication or basal narcosis has been employed.

Stage III—Surgical Anaesthesia

Having passed through the stages already described the patient emerges into a tranquil phase of narcosis which resembles natural sleep. The respiration becomes automatic and muscular relaxation progressively greater. The corneal reflex disappears about the middle of this stage, but both it and the size and reaction of the pupil are so affected by the drugs used for premedication and narcosis that a generalization is impossible. The blood pressure is usually within normal limits, but tends to be raised with cyclopropane and ether and lowered with chloroform. As the tongue muscles lose their tone this organ may drop back and cause respiratory obstruction, a condition generally overcome by jaw traction or by the introduction of an artificial airway. It is the anaesthetist's aim to maintain the level of narcosis within the limits of this stage as required by the nature of the operation.

Stage IV—Overdose

The signs of overdosage vary somewhat with different agents, but resemble those of shock. Thus we have to note pallor, coldness of the skin, absent reflexes, a dilated inactive pupil, rising pulse rate, falling blood pressure (systolic more than diastolic), spaced or sighing type of respiration, which becomes shallow and ultimately ceases. At a varying time after this the pulse fails and death supervenes. In order to distinguish overdosage from other factors in shock McKesson devised the "depression test." A large volume of oxygen is suddenly added to the anaesthetic mixture and the blood pressure is observed. An obvious rise indicates overdosage (especially with nitrous oxide and ethylene). If there is no appreciable change the shock is due to other factors. The "law of diminishing resistance," which was propounded many years ago by Richard Gill, states that "the amount of a drug required to produce a given depth of anaesthesia diminishes with the time of its administration." Ignorance of this law leads to many cases of overdosage.

The signs relating to the depth of anaesthesia induced by the individual volatile agents will now be considered.

Nitrous Oxide and Air

Analgesia can be induced in most patients by the self-administration of about 35 per cent. nitrous oxide in air. This method is becoming increasingly popular in midwifery and dentistry. Minnitt's intermittent-flow apparatus is extremely efficient and reliable for this purpose, as is a somewhat simplified machine working on the same principle (the Minnitt-Walton). The success of these types has flooded the market with many imitations, all of which are not uniformly satisfactory. The signs associated with the analgesic state are inconstant and variable, most patients remaining quite conscious but insensitive to pain.

Anaesthesia is induced with pure nitrous oxide. A few moments after the beginning of the inhalation the

patient's respiration becomes regular and deep. This is misleading to a beginner, who may imagine that it indicates the automatic breathing characteristic of the third stage of anaesthesia already described. The only reliable guide to the onset of anaesthesia is the change in respiration to irregularity and/or stertor—a change which is certain to take place if air leaks are absent. The operation may be started at this point, and thereafter the anaesthetist alternates between "air" and "rebreathing" in such proportion as to avoid the convulsive bilateral twitching which indicates a commencing jactitation on the one hand and purposeful reflex movements on the other. Slight cyanosis is usual when anaesthesia has become established, but depends upon the type of patient. An anaemic girl may actually jactitate without any colour change; while a plethoric alcoholic may be almost black before reaching the stage of unconsciousness. The eye signs, although usually stressed, are so variable that in my opinion they are best ignored. The blood pressure is always raised during the administration of gas and air owing to the inevitable partial asphyxia which accompanies it.

Nitrous Oxide and Oxygen

The induction of anaesthesia is effected with pure gas until just before the "end-point" previously described. Oxygen is then added to the gas in accordance with the requirements of the individual patient. It must be realized that some degree of anoxaemia will be present in the normal subject unless fairly heavy premedication or basal narcosis has been used. When this is the case, however, it should be possible to keep most patients at a continuous level of quiet anaesthesia with little or no cyanosis. Opinions differ as to whether a slight degree of cyanosis is detrimental to patients with a normal haemoglobin value provided that the airway is clear. Respiration is fairly deep with the usual technique of partial rebreathing, but if complete rebreathing with CO_2 absorption is adopted respiration resembles that of natural sleep, and a very perfect anaesthesia can be secured. The corneal reflex will be brisk throughout the administration, and the blood pressure will be either normal or slightly raised if appreciable anoxaemia is present. Complete muscular relaxation cannot be obtained with pure nitrous oxide and oxygen unless some type of local analgesia is added or recourse is had to "secondary saturation." The latter technique will not be described here as it is unsuitable for the general practitioner, and necessitates an apparatus capable of inflating the lungs instantly with oxygen under pressure.

It must be realized that there is a very narrow margin with pure gas and oxygen, and a mixture which is slightly too rich or too poor in oxygen will eventually cause retching or actual vomiting. The beginner will find that he requires the help of a small quantity of ether added to the gases, but as his experience increases this necessity diminishes, with consequent benefit to the patient. If complete muscular relaxation is imperative sufficient ether is added to secure it, in which case the patient will show the signs of a semi-closed ether narcosis.

Ethylene and Acetylene

Ethylene-oxygen anaesthesia resembles nitrous-oxide-oxygen anaesthesia except that muscular relaxation is better and a rather higher percentage of oxygen can be used. The same remarks apply to acetylene. Since these gases are seldom employed for anaesthesia in Great Britain they will not be discussed further.

Cyclopropane

Owing to its high cost cyclopropane is always given by the closed-circuit technique, quite a simple apparatus being adequate. This gas is an extremely potent anaesthetic, and approximately 85 per cent. oxygen can be administered. Good relaxation can be obtained with this mixture, so that cyanosis should never occur. The second stage of anaesthesia is usually unnoticeable, the induction being rapid and smooth. Since cyclopropane causes no irritation and is a respiratory depressant it is easy for the inexperienced anaesthetist to give an overdose. In this case the breathing becomes imperceptible, but a few compressions of the rebreathing bag and the addition of oxygen soon restores normal rhythm. The blood pressure usually rises, and vascular oozing from the skin and superficial tissues is increased. A careful watch should be kept on the pulse, and if there is a pronounced degree of bradycardia, tachycardia, or arrhythmia the gas concentration should immediately be reduced.

Ethyl Chloride

Ethyl chloride is usually employed as a "single-dose" anaesthetic of short duration for children, and may be given by the open or closed methods. Although the child may show apparently little change for the first few moments, actually the induction of anaesthesia is extremely rapid, and the third stage may be reached within a few seconds of the cessation of talking or moving. Muscular spasm, particularly laryngeal and masseteric, may be marked in the second stage, especially if air is limited, as in the closed technique. In order to prevent clenching of the jaw an oral prop should be inserted before administration. Directly respiration becomes quiet and regular the mask should be removed, and a variable period of anaesthesia will ensue. It is possible to supplement the dose of ethyl chloride from time to time, but it is difficult to maintain an even level of anaesthesia for long, and it is extremely easy to give an overdose.

Open ethyl chloride is also useful to induce anaesthesia in children, a change-over to ether being made directly respiration becomes quiet or stertorous. Ether must be used freely at this stage, or the child will come round from the one drug before being anaesthetized with the other, in which case there will probably be coughing.

Di-vinyl Ether

Di-vinyl ether is extremely volatile, and is best given with oxygen in a closed inhaler or added in minute amounts to mixtures of nitrous oxide and oxygen. Induction is rapid, and the drug differs from di-ethyl ether in being about four times as potent, less irritating to the respiratory passages, and less likely to cause nausea and vomiting. Muscular relaxation is variable, but usually good.

Di-ethyl Ether

Induction of anaesthesia with open ether is a lengthy and trying procedure for both patient and anaesthetist. The closed and semi-closed methods, using the expired carbon dioxide to stimulate respiration, reduce the induction period considerably, especially if nitrous oxide or ethyl chloride is administered at the beginning. Even so, the second stage is apt to be marked, particularly in robust and alcoholic males. When the plane of surgical anaesthesia is established with open ether respiration becomes quiet and rather deep, the colour is pink, and the blood pressure slightly raised. Salivation and the secretion of mucus may be troublesome unless an adequate dose of

atropine or scopolamine has been given at least half an hour before induction. If good relaxation is essential the anaesthesia must be progressively deepened until the laryngeal muscles are paralysed, unless previous cocainization has been performed. After this level is reached the anaesthesia can usually be lightened appreciably. Although there is a large margin of safety with di-ethyl ether it causes an appreciable metabolic upset, as shown by raised blood-sugar and blood-urea values and post-operative albuminuria.

Two curious manifestations are occasionally seen during ether narcosis. A mild and innocuous tremor may occur during the initial stages. This generally disappears as anaesthesia becomes deeper. The more serious ether spasm is as a rule confined to the stage of deep narcosis and begins in the face muscles, ending as generalized epileptiform convulsions. The cause remains obscure, and if the usual remedies fail to stop the twitching calcium gluconate should be injected intravenously.

Chloroform

Some degree of analgesia is common in the first stage of chloroform narcosis; the second stage is not so marked as that of ether, and there is less tendency to laryngeal spasm. The danger period of primary cardiac failure has been proved to be at the end of the second stage, just before full surgical anaesthesia is reached. A "pre-fibrillation phase" can often be demonstrated at this point by the electrocardiograph. For some imperfectly understood reason there appears to be little risk of primary cardiac failure in parturient women. Since chloroform is a respiratory depressant and does not appreciably irritate the air passages, the third stage is marked by quiet and shallow respiration. Salivation is usually absent and muscular relaxation is excellent. The blood pressure is somewhat lowered. The pupil is small and tends to become larger and inactive in overdose, while it becomes larger and active with a positive corneal reflex if anaesthesia gets lighter. The movement of swallowing may accompany these signs. The margin of safety is much smaller than with ether, but in true overdose the respiration fails first and allows time for restorative measures to take effect before secondary cardiac failure develops. Chloroform is an extremely toxic drug, and can cause grave metabolic changes. Chloroform-ether mixtures will cause deeper respiration in proportion to the amount of ether present, but it should be noted that they give no immunity from the risk of primary cardiac failure.

CHEAP MILK FOR MOTHERS AND CHILDREN

DEPUTATION TO MINISTRY OF HEALTH

Sir KINGSLEY WOOD, who was accompanied by Mr. ROBERT BERNAYS, Parliamentary Secretary to the Ministry of Health, received on July 27 a deputation from the Children's Minimum Council to urge that milk should be provided for nursing and expectant mothers and children under school age of working-class families at 1½d. a pint, and that the milk should be free where the family income fell below a scale to be determined by the Ministry. This "positive milk policy" was referred to in a leading article in the *British Medical Journal* of July 17 (p. 121).

Policy of Children's Minimum Council

Miss ELEANOR RATHBONE, M.P., introducing the deputation, said that it was supported by twenty-nine societies, including nearly all those working for child welfare. Health authorities were unanimous as to the great need for increased milk drinking, especially by mothers and young children. The great obstacle was the high price of milk. The deputation proposed that the cheapened supply asked for should be secured by diverting some of the milk now sold for manufacturing purposes at about 5½d. a gallon. Producers and distributors should be asked to supply milk under the scheme at a lower price than that now charged in the retail trade. The remaining deficit should be covered by a subsidy which, on a basis admittedly hypothetical, might amount to about £1,600,000 per annum. The Minister was reminded that a scheme roughly on these lines had been submitted three years previously, but though sympathetic consideration was promised no practical advance had been made.

Mr. C. S. ORWIN, Director of the Agricultural Economics Research Institute of Oxford, said that the recent survey issued by his institute had been quoted as belittling the probable effects on consumption of a reduction in price. The survey showed that the price of milk was of great importance, but also that ignorance of its food value and prejudice were deterrent factors. A propagandist and educational campaign was most important and should therefore accompany any scheme for a supply of cheap milk.

The Minister's Reply

Sir KINGSLEY WOOD said in reply that he was in full agreement with the main objects and the general aim of the deputation. The Government's general policy was to ensure a maximum supply of milk for the consumer consistent with a reasonable remuneration to the producer, to improve the purity of the milk supply and also to continue and, where practicable, extend their policy of increased consumption of milk among those sections of the population for whom it was of particular value.

Milk was one of the most valuable of human foods, particularly in the diet of mothers and young children. It was largely on that account that the milk-in-schools scheme had been inaugurated, and it was satisfactory that over two and a half million children were participating in it to-day. Sir Kingsley Wood said in pursuance of this policy he had recently called the attention of local authorities to the recent report of the Advisory Committee on Nutrition, and particularly to its recommendations as to the nutritional value of milk. They had been requested to review their arrangements for the supply of milk and food to expectant and nursing mothers and young children, and their special attention had also been drawn to the importance of a sufficient supply of milk being made available throughout pregnancy and for children up to the age at which they entered school. The authorities were responding to these suggestions, and a number were already extending their provisions. It was to be noted that at the beginning of 1937 406 of the 418 maternity and child welfare authorities in England and Wales were supplying milk either free or at less than cost price in necessitous cases to expectant mothers, 406 to nursing mothers, and 404 to children under 5 years of age. Closer supervision of the nutrition of children was also being secured by the provision of more nursery schools and nursery classes.

Under the recent revision of the Government grants to local authorities increased money had been made available to them for the improvement of their services, those whose needs were the greatest receiving increased assistance from the extra five million pounds which was now available. The Minister also desired to add that he attached the greatest importance to an improvement in the safety and cleanliness of the milk supply. The question of further schemes for the supply of milk, either free or at a reduced price for mothers and young children, had been under active consideration by the Government in connexion with its long-term milk policy. He could not anticipate any statement that would be made to Parliament, but he could say that the Minister of Agriculture and Fisheries still hoped that it would be possible to make a statement before Parliament rose for the recess.

ONE HUNDRED AND FIFTH ANNUAL MEETING
of the
British Medical Association
HELD IN BELFAST, JULY, 1937

THE SECTIONS
SUMMARY OF PROCEEDINGS

During the next few months there will be published in the BRITISH MEDICAL JOURNAL *the opening papers communicated to the Scientific Sections of the Annual Meeting at Belfast. The reports of discussions, continued from last week (p. 240), are intended to give members who were not present a general idea of the proceedings.*

SECTION OF MEDICINE

Thursday, July 22

Cholecystitis

With the President, Professor W. W. D. THOMSON, in the chair, a discussion on cholecystitis was opened by Professor J. W. MCNEE, who claimed that disease of the gall-bladder was the commonest of all organic troubles of the digestive tract. Piersol of Philadelphia had found that gall-bladder disease was diagnosed in 16.3 per cent. of patients admitted to a gastro-enterological clinic. Cholecystitis was by no means confined to middle-aged women who had borne children, but might occur in young men and women, and even children. A sedentary occupation causing biliary stasis undoubtedly conduced to infection, which would be due usually to streptococci, coliform organisms, or occasionally *B. welchii*. From a diagnostic standpoint the opener was concerned essentially with catarrhal cholecystitis. He felt that a history of flatulent dyspepsia, even without abdominal pain or tenderness, was significant; but he considered that *x*-ray evidence was an unreliable basis upon which to found a diagnosis in early cases. On the other hand duodenal intubation was a method of great importance; failure with this method was sometimes due to the use of the wrong type of tube, and to inexperience; properly used, it was often the only certain means of establishing the diagnosis. Professor McNee held that medical drainage of the gall-bladder could be secured by the administration of small quantities of concentrated magnesium sulphate solution before breakfast. He did not think that restriction in diet was advisable, apart from the prohibition of cooked fat and fried foods, which often aggravated the flatulent dyspepsia.

Sir ARTHUR HURST emphasized the frequency of gall-bladder disease by stating that as many patients were treated for this at New Lodge in the last ten years as were treated for gastric and duodenal ulcers combined. He was convinced that infection of the gall-bladder arose through ascending infection of the bile duct; such a method of infection would be favoured in any condition, such as gastric influenza or food poisoning, that produced temporary achlorhydria and consequently a multiplication of bacteria in the duodenum; in pregnancy achlorhydria was not uncommon, and the association with cholecystitis was well known. Sir Arthur stressed Murphy's sign as an important diagnostic test, and he shared Professor McNee's view that the cholecystogram might give little help in certain cases of catarrhal cholecystitis. He insisted that examination of the bile in suspected gall-bladder disease was as important as examination of the urine in investigating renal conditions. Bile from a morbid gall-bladder would contain excess of mucus, while microscopical examination would reveal columnar cells in groups and leucocytes in the more severe infections; pigment granules and lipoid globules might be seen, and the presence of large but broken cholesterol crystals was pathognomonic of cholecystitis. Culture revealed *B. coli* most frequently. On treatment, the speaker quoted Venables's results, which showed that the bile flow produced by oral magnesium sulphate was almost as great as that by intubation; besides magnesium sulphate on waking, he advised the administration of a tablespoonful of olive oil before each meal, and the use of hexamine in doses of 100 grains t.d.s., the urine being previously rendered alkaline and kept so during the treatment, which should continue for six weeks.

Sir DAVID WILKIE (Edinburgh) doubted whether data founded on culture of bile could be accepted. He considered that cholecystitis was a "slow, indolent, intramural, blood-borne infection"; at operations he had taken cultures from the bile, the wall of the gall-bladder, and the cystic gland, and had found streptococci in many cases, but *B. coli* in few. The indications for surgery were: (1) repeated biliary colic; (2) colic with continuing dyspeptic symptoms; (3) acute obstructive cholecystitis; (4) the suspicion that *B. welchii* infection was present; (5) gall-bladder disease at later ages; (6) stone in the common duct; and (7) when the gall-bladder was a probable septic focus for some other condition. His mortality statistics from operations for cholecystectomy and cholecystostomy were below 2 per cent. and 5 per cent. respectively. In referring to findings at operation, Sir David mentioned the frequency of associated gall-bladder disease and duodenal ulcer.

Radiology of the Gall-bladder

Dr. T. GARRATT HARDMAN (Dublin) referred to cholecystography as an outstanding advance in the diagnosis of gall-bladder disease; he did not consider the test was infallible, but with care in administration and radiological technique it was possible to make correct inferences in a high proportion of cases. It was necessary to make a complete *x*-ray investigation of the alimentary tract whenever clinical findings were at variance with those of cholecystography. This method was not only of help in diagnosing inflammation of the gall-bladder but also in determining the presence of stones, and sometimes benign or malignant growths. *X* rays might be proved fallacious when a normal picture was followed by the discovery of a pathological organ at operation; occasionally no filling was obtained, and yet a healthy gall-bladder was found at laparotomy. This might be due to deficient liver function, rapid emptying of the gall-bladder, failing of absorption of the dye, or vomiting soon after taking dye. In Dr. Hardman's experience confirmation of radiological inferences had been forthcoming in 88 per cent. of cases.

Cardiac Pain in Gall-bladder Subjects

Dr. CHARLES MILLER described the clinical syndromes in which cardiac pain might be associated with gall-bladder lesions. A sense of dying was sometimes experienced in cases of distension of the gall-bladder, and this symptom, as well as recurring anginal pain, might be relieved by suitable operation. He had made a study of the morbid anatomy of the cardiovascular system in patients suffering from non-malignant gall-bladder disease. Statistical examination of his figures had shown that there was a special liability for the subjects of gall-bladder disease between the ages of 50 and 60 to suffer cardiovascular degeneration, while for males alone the same was true between the ages of 40 and 70.

Dr. GEORGE BATTEN commented on the number of patients with gall-bladder disease who remained symptomless for many years. He also asked what treatment should be adopted when stones and symptoms due to them recurred after operation. Dr. JOHNSTON (Westmorland) felt that his experience had brought him more and more in favour of surgery, and he described some cases bearing on operative treatment. Dr. G. E. NESBITT (East London, S. Africa) agreed that intubation had its difficulties, and inquired regarding matters of technique. He threw doubt on the relation of the gall-bladder to cardiac symptoms, and also on the connexion between cholecystitis and migraine.

Dr. HAROLD COOKSON (Bournemouth) considered that there was less shock in acute gall-bladder syndromes than in coronary thrombosis, and that in the former group the pain might disappear suddenly. Possibly there was a reflex mechanism connecting the gall-bladder and the heart analogous to the coronary constriction that might occur in pulmonary embolism. Dr. L. E. ACOMB (Newport, Mon.) mentioned the diagnostic importance of scapular pain, particularly if it was aggravated by stooping. He was rather doubtful about the value of radiology. Dr. N. E. WATERFIELD (Great Bookham) considered that pain in the region of the liver might be due to transient hepatitis from the ingestion of fat foods. Dr. CRAIG asked how *B. welchii* infection might be suspected before operation.

Dr. J. S. MCKELVEY (Saintfield, Co. Down) commented on the frequency of gall-bladder trouble in the young, who were inclined to hurry their meals and eat too much. Belladonna and hydrated magnesia formed a good combination. Dr. E. R. CULLINAN agreed that duodenal intubation was most important for diagnosis. As to the association with migraine, he thought it was doubtful whether this or cholecystitis was the primary trouble. Very often attention to the gall-bladder would bring relief from migrainous attacks.

Sir DAVID WILKIE answered several questions that had been put. Although a single stone in the common duct was associated with jaundice, multiple stones might not be. He thought that so-called bilious attacks had nothing to do with the gall-bladder.

Professor MCNEE, in conclusion, mentioned that the end of the duodenal tube should be pyriform in shape, with the blunt end foremost. The diversity of opinion regarding the infecting organism might possibly be due to the stage at which cases were being investigated. Perhaps coliform organisms related more to early infections. He thought that there were no medical remedies equal to magnesium sulphate and olive oil, and he still felt sceptical as to the value of hexamine.

SECTION OF SURGERY

Thursday, July 22

Preceding the main discussion a series of short papers were read.

Duodenal Regurgitation

Professor L. R. BRAITHWAITE (Leeds) enlarged on some points in duodenal regurgitation. He said that while physiologists had noted and investigated bile regurgitation they had done little in regard to pancreatic juice, which probably formed 80 per cent. of the regurgitant fluid. Gastroscopy was proving beyond doubt not only that duodenal regurgitation did occur, but that it was more frequent and copious than had been supposed. Bile represented only 10 per cent. of the fluid, the chief constituent being pancreatic. He was obsessed with a theory that regurgitation of bile might have beneficial effects on peptic ulcers, and had at times performed cholecystgastrostomy in these cases. The results had been gratifying, but in many cases recurrence had taken place after eighteen months, when the anastomosis had been found to be closed. Re-anastomosis was as successful. If he could rely on a patent anastomosis he would advocate the operation for duodenal ulcer without stenosis, but, because of the incidence of carcinoma, he advocated partial gastrectomy for gastric ulcer. He had been talking about an operation in which bile regurgitation only was employed; he had not had the courage to divide the duodeno-jejunal junction, close both ends, and perform a posterior gastro-enterostomy, the only procedure which would allow complete duodenal regurgitation. In conclusion Professor Braithwaite asserted that duodenal regurgitation could no longer be considered an accidental phenomenon, but was well worthy of serious and widespread investigation.

Treatment of Severe Burns

Professor A. K. HENRY spoke on factors in the successful treatment of severe burns based upon findings at the Kasr-el-Aini Hospital, Cairo. Regarding the basic treatment as the application of a 5 per cent. aqueous solution of tannic acid, he emphasized the necessity of cleaning the surrounding healthy skin; otherwise sepsis often appeared at the edges of the crust. He employed a 1 per cent. solution of brilliant green in 30 per cent. alcohol, but owing to the rate of retraction of the crust, even within an hour or two, it was necessary to repaint frequently. In the treatment of the associated shock he had at one time waited for sufficient improvement before instituting the local tannic acid treatment. So many had died that, wearying of this attitude, he had set a limit of one hour. Whatever the state then the tannic acid was applied, and he had had the satisfaction of seeing many patients recover who otherwise, he was sure, would have died. In regard to the toxaemia of burns, it had been found that the blood in some of these cases contained four times the normal amount of histamine and that this increase did not occur till the fourth day after the accident, the most dangerous period where initial treatment has been successful. He associated the histamine increase with the increase of acid in the gastric juice. Massive doses of soluble alkali had given strikingly good results.

Steinach Operation for Prostatic Symptoms

Mr. J. G. YATES BELL, in a paper upon the Steinach operation for the relief of prostatic symptoms, said that Niehans had ligatured the vasa efferentia between the testis and epididymis and claimed to produce an increase of the internal secretion of the testis and a diminution in prostatic hypertrophy. The theories underlying were: first, as claimed by Niehans, an endocrine effect, and, secondly, a vasomotor reflex due to the pressure of the ligature on a sympathetic ganglion. He, Mr. Yates Bell, because of late beneficial effects in two cases, subscribed to the former theory. Niehans had claimed to have relieved nearly 400 patients by ligature without much mention of failure or case selection. Elliot Smith reported good results in a small series of advanced prostatic cases, with, however, some failures. The speaker had done the operation in twenty-eight instances, in seven of which, however, other surgical procedures, such as litholapaxy, were involved, so that in only twenty-one cases was the uncomplicated operation performed. Of these fifteen were successful, two were doubtful, and four were complete failures. The greatest successes were in the cases of early obstruction. The majority of these had already had medical treatment without success. He thought the indications for the operation were: (1) in slight cases to prevent further enlargement, (2) early cases with residual urine under four ounces but established symptoms, (3) as an accompaniment of some such procedure as litholapaxy when the stones are associated with prostatic hypertrophy. The contraindications, he considered, were: (1)

established prostate cases where delay would involve risk of damage to renal function, and (2) patients with atrophic testes. He pleaded for careful case selection.

Cutting of Sphincter of Oddi for Relief of Pain

Professor E. W. ARCHIBALD (Montreal) spoke upon section of the sphincter of Oddi for relief of pain following cholecystectomy and recurring pancreatitis without stone and for subacute cholangitis. He said that following the demonstration that the direct passage of bile to the pancreas because of an impacted stone in the ampulla of Vater produced pancreatitis, he had assumed, because of the large number of cases of acute and chronic pancreatitis which were unassociated with stones, that the same theory of retrojection of bile might hold, due to spasm of the sphincter of Oddi. Later he realized that mere distension of the common bile duct and gall-bladder by spasm of the sphincter could cause pain. Where attacks of pain occurred after removal of the gall-bladder, in the absence of signs of organic cause, they would be explained by the common bile duct failing to take up back pressure as well as with the help of the gall-bladder. Where signs of organic cause were not present he advised, first, medical treatment consisting of frequent feedings and the exhibition of bile salt tablets. If this failed operation was indicated. At operation search should be made for organic causes; none being found, the procedure was section of the sphincter of Oddi. He demonstrated an instrument which, passed down the common bile duct, elevated the sphincter so that it could be got at through a half-inch incision in the duodenum.

Obstructions of the Common Bile Duct

With Professor P. T. CRYMBLE, President, in the chair, the discussion on obstructions of the common bile duct was opened by Professor E. R. FLINT, whose paper appears in this week's *Journal* at page 253.

Mr. HOWARD STEVENSON (Belfast) emphasized that in these cases one was dealing with a widespread disordered metabolism, and endorsed Professor Flint's advocacy of pre-operative preparation. Regarding drainage of the common duct, he was much more in favour of external than internal drainage, because of its decompression effect and because of the ability to introduce a tube for immediate feeding into the duodenum. Where internal drainage was instituted he had a distinct objection to the use of rigid instruments, and preferred weighted gum-elastic probes.

Mr. G. GORDON-TAYLOR, after paying a tribute to Professor Flint's work in this field, declared his almost entire agreement with the opening remarks. He, however, disliked high spinal anaesthesia in these cases; in his experience such had been associated with too high a rate of chest complications. Mr. Gordon-Taylor deprecated the growing tendency to explore the common bile duct where there was no reason for this in simple cholecystectomy. Such an additional operative step not only added to the risk but entailed additional discomfort to the patient. In the matter of suture or drainage of the common duct after choledochotomy his bias was towards external drainage, especially in obese patients. He recalled two cases in which the duct had been carefully sutured after a negative exploration, but the suture line had burst open on straining after several days. Mr. Gordon-Taylor referred to the frequent association of *B. welchii* with gall-stones and pancreatitis. He advocated the use of cyclotropin in cases of common duct obstruction associated with infective cholangitis and pre-operative irradiation of the splenic area to diminish the tendency to bleeding. In conclusion, he thought that more courage was required in dealing with malignant disease of the common bile duct, particularly at its lower end, the most common site.

Professor A. H. BURGESS (Manchester) agreed with Mr. Gordon-Taylor that choledochotomy for diagnostic purposes was too often done. In the absence of an indurated pancreas the hepatic and common ducts could be adequately palpated between the forefinger introduced into the foramen of Winslow and the thumb in front of the small omentum. After choledochotomy he invariably instituted external drainage.

Mr. NORMAN C. LAKE said that Professor Flint's mention of arthritis prompted him to postulate that the gall-bladder was a commoner site of focal infection in the abdomen than any other organ, although most cases of osteo-arthritis were of a wear-and-tear nature rather than infective. He declared a preference for high spinal analgesia.

Professor C. F. M. SAINT (Capetown) said that a likelihood of bleeding could be detected by a rising bilirubin content of the blood, and that a delayed sedimentation rate was similarly informative. He advocated the use of a Murphy button in cholecyst-enterostomy as allowing of better haemostasis. The PRESIDENT described a case of obstruction of the ampulla due to an adenoma in which local excision gave a good result.

SECTION OF PHARMACOLOGY AND THERAPEUTICS

Thursday, July 22

Treatment of Circulatory Failure

At the second session of the Section of Pharmacology and Therapeutics, including Anaesthesia, Professor DAVID CAMPBELL, Vice-President, occupied the chair.

Dr. J. CRIGHTON BRAMWELL (Manchester), in opening a discussion on the treatment of circulatory failure, compared the variations in the cardiac reserve in healthy individuals with those in patients suffering from heart disease. In the latter, while the basal disability was determined by the structural lesions, additional impairment of cardiac function was consequent upon toxic and nervous causes. He suggested that the term heart failure should include angina, and he pointed out that the general indications for the treatment of angina of effort and of congestive heart failure were the same. He contrasted the clinical features of right and left ventricular failure, and described the three principal manifestations of the latter condition—namely, paroxysmal dyspnoea, gallop rhythm, and pulsus alternans. Rest and skilled nursing and, above all, early diagnosis were the fundamental considerations in the treatment of acute heart failure. When convalescence was complete the patient's future activities should be carefully regulated in order to prevent a further breakdown. While avoiding all sudden and severe forms of exertion, he should be advised to take regular exercise within the limits of his tolerance. Stair climbing should be eliminated and special precautions taken in the event of intercurrent infections, since these added greatly to the burden of the damaged heart. The associated anxiety factor should not be forgotten, and cerebral depressants were valuable drugs for the treatment of the nervous aspect of the condition. Dr. Bramwell was inclined to regard the major surgical procedures at present in vogue for the treatment of heart failure as still in the experimental stage, but he was convinced of the value of venesection both in acute pulmonary oedema and in acute cases of congestive heart failure. In ischaemic heart failure the basal disability was dependent upon disease of the coronary arteries, but much could be done to relieve the impairment of myocardial efficiency produced by nervous and toxic factors and to lighten the additional load due to obesity and other complications. The object of treatment was to enable the heart to balance its budget by increasing its assets and by reducing its liabilities.

Professor K. D. WILKINSON (Birmingham), discussing the effect of digitalis, said that this drug was the most

valuable of all in the treatment of heart failure. It might prevent and would generally alleviate this condition, and it should be given in adequate doses to all cases of congestive failure whatever the rhythm of the heart. The best preparation for oral administration was the powdered leaf in doses of 1 to 4 grains a day, but strophanthin or digoxin 0.25 mg. might be given intravenously in emergency. It might be necessary to give one of the preparations in large doses so that speedy control of a failing rapid heart might be established, but the very necessity for such action suggested that an impending case of heart failure had not been recognized. In these circumstances 6 grains of the powdered leaf could be given at once, a further 3 grains in six hours, and another 3 grains within the first day. Or if the condition was more urgent 0.25 mg. of strophanthin or digoxin could be given intravenously and repeated in two hours. The average daily dose of leaf needed to control the ventricular rate in fibrillation was about 3 grains, but much less might be adequate and much more might be necessary.

Dr. S. B. BOYD CAMPBELL (Belfast) said that peripheral failure could be treated by increasing the blood volume and the chloride deficiency by intravenous injections of salines with or without glucose or by transfusion of whole or citrated blood. In the collapse associated with thyrotoxicosis the addition of collosol iodine and calcium gluconate to the injected saline was often useful. Digitalis was of limited value in peripheral failure, but strychnine, caffeine sodium benzoate, and adrenaline could be prescribed with advantage. Regarding the treatment of oedema, Dr. Campbell said that he had found the newer mercurial diuretics of considerable value. A satisfactory diuresis could be produced by the use of novurit suppositories when injections were not tolerated. Acupuncture was useful in cases of generalized oedema, and this could safely be performed by making fifteen to twenty small punctures down the front of each leg. The risk in tapping the abdomen was slight, but great care must be taken when tapping the chest in cases of heart failure.

Dr. A. R. GILCHRIST (Edinburgh) said that dietetic measures were a subsidiary but important aspect of the treatment of many forms of heart disease. The heart could be regarded as a sensitive index of the degree of nutrition as witnessed in such extreme states as war oedema and anorexia nervosa on the one hand and in obesity on the other. An excessive caloric intake was much the more common, and treatment for obesity was of the greatest importance in cardiac patients, particularly in those with anginal symptoms. In congestive heart failure rest was promoted by a low caloric diet, and help was obtained by restricting the daily intake of fluid to about one litre. A low salt intake was also of value in certain types of congestive failure, for this reduced thirst and facilitated drug action. Dr. Gilchrist suggested that, in congestive failure, disorders of inorganic metabolism in the periphery could not be disregarded, and he believed that attention to this aspect by restriction of salt and fluid played a useful and important part in treatment.

Dr. E. P. POULTON said that, when there was evidence that pulmonary oedema was associated with weakness of the heart in general, efficient oxygen treatment was of great use. This form of therapy was also of value in arteriosclerotic heart disease rather than in the valvular disease of young subjects. The closed method of administering oxygen by a closed tent was more efficient than open methods such as Campbell's mask and the double nasal tube and catheter. With the closed type of tent it had been shown that an oxygen figure of 40 per cent. could be obtained with a flow of 1½ litres per minute, and that this could be increased to 50 per cent. with a flow of 2 litres per minute. With the St. George's Hospital type of tent, however, it had been shown that, with a child aged 9 years, a flow of 6 to 8 litres per minute secured 70 per cent. of oxygen in the pocket at the bottom of the tent, but at the end of half an hour the percentage over the patient's face was 20 to 25.

Dr. GEORGE GRAHAM referred to some observations on a patient with typical paroxysmal attacks of pulmonary oedema. The blood pressure rose soon after the onset of the attack, and the haemoglobin value rose from 80 to 135, showing a great increase in the concentration of the blood. The acute onset of the symptoms and the rise in blood pressure suggested that spasm of the pulmonary veins and *not* left heart failure was the causal condition. The symptoms were relieved by the subcutaneous injection of 1/2 c.cm. of adrenaline, repeated twenty minutes later, and he suggested that this agent should always be employed after the preliminary use of morphine. Care should be taken not to inject adrenaline into a vein. Dr. M. ASTON KEY (Southsea) said he had found the newer mercurial diuretics to be of very great value and, for oral administration, apocynum was not without its uses. He had always found Nativelle's granules a satisfactory preparation of digitalis. Dr. A. FULLERTON (Batley) inquired if icoral or cardiazol were of value in the treatment of peripheral failure. Professor J. H. GADDUM explained that Nativelle's digitalin was a mixture of glucosides with a preponderance of digitoxin. Digoxin was prepared from digitalis lanata.

Dr. J. F. COLTMAN (Calcutta) believed that pitressin was of value in peripheral failure, and he advocated a preliminary estimation of the specific gravity of the blood before the intravenous injection of saline in order to give some idea of the quantity required. Professor CAMPBELL observed a time lag between the result of pharmacological investigation and its clinical application. He believed that a more accurate classification of cases would lead to a more accurate use of drugs.

Therapeutic Use of Magnesium Trisilicate

Dr. NATHAN MUTCH contributed a paper with this title. He said that medicinal magnesium trisilicate had been defined as a compound represented by the formula $H_4Mg_2Si_3O_{10}$, and giving the pure diffraction radiogram of the natural mineral sepiolite No. 1. The ratio $MgO:SiO_2 = 1:2.24$. It had been shown that many of the marketed brands of magnesium trisilicate failed entirely to conform to these basal requirements, mainly in respect of the $MgO:SiO_2$ ratio. This substance, which was non-poisonous, could be employed in therapeutics in order to secure continuous control of gastric acidity in hyperacid states without the production of systemic alkalosis. The silica deposited as a result of interaction between the gastric hydrochloric acid and magnesium trisilicate was free for absorption purposes in the small intestine.

Dr. POULTON said that test meals performed before and after the operation of gastrojejunostomy for ulcerative conditions showed no difference in the degree of gastric acidity, and he therefore expressed the view that a mechanical factor was mainly involved in the causation of these states. Professor CAMPBELL inquired if magnesium trisilicate gave quick and permanent relief. In reply, Dr. MUTCH stated that this drug, although it possessed potent adsorptive properties, was put forward as a means of continuously controlling gastric acidity.

COMBINED SECTIONS OF OBSTETRICS AND GYNAECOLOGY, AND NUTRITION

Thursday, July 22

Nutritional Needs in Pregnancy

With the President of the Section of Obstetrics and Gynaecology, Professor C. G. LOWRY (Belfast), in the chair, a discussion on the nutritional needs in pregnancy was opened by Sir ROBERT MCCARRISON (Oxford), Dame LOUISE MCILROY, and Dr. G. C. M. M'GONIGLE (Stockton-on-Tees), whose papers appear in this week's *Journal* at

pages 256, 258, and 259. Dr. M'Gonigle was prevented from attending, and his paper was read by Professor D. C. HARRISON (Belfast). The discussion was continued by Dr. LUCY WILLS, who dealt with osteomalacia and with the needs for calcium and phosphorus. She said that the healthy non-pregnant woman required 0.55 gramme of calcium a day, but in pregnancy the requirement was about 1.6 grammes. The diets of many women contained less even than the former figure. The needs of pregnancy could only be met by ensuring the intake of at least a quart of milk per day, together with either exposure to sunlight or the intake of vitamin D. She pointed out the frequency of occurrence of osteomalacia in pregnancy in Eastern countries, and stated that although osteomalacia was rare in this country the frequent occurrence of negative calcium and phosphorus balances led to osteoporosis and carious teeth in nursing mothers and to rickets and ill-developed teeth even in breast-fed infants.

Dr. MARGARET I. BALFOUR dealt with some practical means of securing better nutrition. She pointed out difficulties in the way of giving extra milk or extra meals to pregnant women of the poorer classes, and commented on the success of the scheme initiated by the National Birthday Trust Fund for providing vitamin supplements. The mortality among 7,000 women taking the supplements had been 1.69 per 1,000, as compared with 6.69 per 1,000 among a comparable group of 14,000 women not taking supplements. The cost had worked out at 2s. 6d. a head per month.

Sir FRANCIS FREMANTLE (Hatfield) put forward a plea for greater emphasis on the need for adequate rest in the working day of the expectant mother. Only in this way could the mother assimilate her food properly. Dr. E. H. M. MILLIGAN (Glossop) had studied the budgets of fifty-two families, and found the income per head in the family to be 4s. 6d. On this sum it was impossible to afford a quart of milk a day. Sir MANGALDAS V. MEHTA (Bombay) reported on the high incidence in Bombay of maternal mortality due to nutritional anaemia. The diet of the poorer women consisted largely of polished rice and gravy.

Mr. L. CARNAC RIVETT criticized the opener's statement that the problems of nutrition in pregnancy were the same as those of the ordinary woman. He felt that the value of milk had been much overstressed. Colonel C. H. REINHOLD, I.M.S. (Punjab), claimed that there was more than one dietary factor involved in the production of osteomalacia.

Professor A. LEYLAND ROBINSON (Liverpool) thought it was wrong to say that the nutrition of a pregnant woman was the same as that of a non-pregnant woman. The presence even of an early foetus made a profound difference to metabolism. It was a great mistake to attempt to treat early toxaemias of pregnancy by partial starvation. Professor LOWRY said that there was nothing lacking in the vision of the medical officers of health, but they were often hampered by the committees which controlled them.

Sir ROBERT MCCARRISON, in closing the discussion, felt that the goal to be aimed at was the rearing of healthy women who could take pregnancy in their stride. Ultimately the crux of the problem of nutrition was an economic one. Dame LOUISE MCILROY stressed the element of neurosis due to household worries in the development of vomiting of pregnancy. It must not be treated by starvation, and fluids must be pressed.

Vitamin E in Habitual Abortion

Mr. D. W. CURRIE (Leeds) read a paper on the use of vitamin E in the treatment of habitual abortion. He reviewed the experimental evidence which had led up to the clinical tests. Some people have said that the vitamin is only necessary in the first three months of pregnancy. In his own series the results had been very good, although most of his patients had not started taking the vitamin until after the third month. They had been given 3 minims daily of wheat-germ oil, and only women who had had two abortions previously were considered in the result. Thirty-seven women, who had had only fifteen viable children out of 121 pregnancies, after treatment gave birth to thirty-six children with only three abortions and four deaths after birth.

Food Intakes of Pregnant Women at Different Economic Levels

Dr. R. A. MCCANCE, in a paper on the actual food intakes of pregnant women at different economic levels, said that in the past most studies had related solely to family diets. It was very difficult to calculate the actual intake of individual members of the family from these family figures. He and his colleagues had weighed the actual intake of each food constituent in the daily diet of pregnant women. He had studied three economic groups in which the income per head in the family after deduction of rent had averaged respectively 8s., 14s., and 26s. 5d. In every respect there was a progressive improvement in the intakes over the three groups. The intake of milk, calcium, and phosphorus was well below the recommendations of the League of Nations Report, even in the highest economic group. He had no political axe to grind, and put the figures forward as a basis for scientific consideration of the problems of nutrition.

SECTION OF DISEASES OF CHILDREN

Thursday, July 22

Dilatation and Elongation of the Colon

With Dr. H. MORLEY FLETCHER, President, in the chair, a discussion on dilatation and elongation of the colon was opened by Professor J. R. LEARMONTH (Aberdeen), the text of whose paper was published in the *Journal* of July 24 (p. 154).

Mr. F. A. R. STAMMERS (Birmingham) pointed out that surgeons in operating upon the abdomen for various conditions had many opportunities of observing anatomical variations in the arrangement of the intestine, and yet in none of these instances did these patients necessarily or commonly suffer from constipation. Hence if the neuromuscular mechanism was physiologically normal it probably did not greatly matter what the shape or length of the bowel was. If diet or defective hygiene led to constipation, however, then some anatomical abnormality of the large bowel might aggravate the resultant constipation. Mr. Stammers pointed out that the milder degrees of dilatation of the colon might not be accompanied by constipation at all, and it was the increasing size of the abdomen which caused patients to seek advice. With reference to the neurogenic factor in the causation of megacolon the speaker mentioned two examples of disorders affecting the lumbosacral region of the cord followed by dilatation of the colon. Accepting the theory of the neurogenic origin of megacolon, he continued, he employed section of the sympathetic nerve supply when medical means had failed. He thought the best operation was to expose the upper part of the presacral plexus, and dissect out and remove fibres ascending from this up to the inferior mesenteric artery and surrounding it for about one inch. Mr. Stammers summarized the results in eight patients thus treated, the youngest of whom was operated upon at the age of 1 year. He thought that patients requiring operation were usually less than 5 or 6 years of age, and on the whole the earlier in life operation was performed the more likely was cure to result, because there would be less change in the wall of the bowel.

Dr. T. PEARSE WILLIAMS emphasized the embryological double origin of the colon in relation to the function of

the distal colon as a storehouse for waste matter. Elongation of the large bowel was usually confined to this portion, the sigmoid loop remaining in later life what it was normally in the infant. This elongation might be the only determinable factor in some cases of constipation, and the type of constipation which occurred was prone to be associated with definite abdominal symptoms, especially colic. French writers, said Dr. Williams, had named the condition "dolichocolon," but not every long colon was associated with constipation, nor was every constipated child the owner of a long colon. Nevertheless, in his opinion unexplained constipation in young children should be investigated radiologically both by an opaque meal and by an opaque enema. Treatment should be non-surgical, and should be by means of diet, habit control, and physiological laxatives.

Dr. ROBERT MARSHALL (Belfast) asked what purgatives or laxatives were best employed in the conditions under discussion, and also what exactly was the best sort of diet to order. Mr. G. D. MCFADDEN (Belfast) raised the question of the actual effect of the sympathetic and parasympathetic nervous systems upon the movements of the distal colon. In his experience section of the sympathetic nerve supply did not produce an emptying of the colon, but more frequently a moderate degree of atonic dilatation. He agreed as to the importance of through-going barium meals. Professor JOHN MORLEY (Manchester) pointed out how surgical opinion of the subject of anatomical variations in the large bowel in relation to symptoms had changed in recent years. He thought that what mattered much more was training in the earliest weeks of life. In true megacolon the effects of sympathectomy were dramatic, but he had considerable misgivings about the permanency of results. Professor L. J. WITTS asked what happened to children with megacolon who were not operated upon. He commented upon the inefficiency of the average radiological technique in examination of the bowel.

Sir ARTHUR HURST (Windsor) explained his views on the development of megacolon as a result of achalasia of the anal sphincter. Certain later developments might lead to an apparent kink at the pelvi-rectal junction, but he was now convinced that this was not a separate entity. Radiological examination should be made in the erect posture, and Sir Arthur agreed as to the importance of an opaque meal as well as an enema to get a true picture of the conditions present. He was opposed to surgical measures, treating his patients by dilatation of the anal sphincter. In early cases this was sufficient, but occasionally an "air-lock" in the upper part of the pelvic colon might occur, and operations to remedy this state of affairs might be necessary. Dr. ROBERT HUTCHISON deprecated so much investigation of cases of constipation, especially if surgery was now held to be seldom indicated for enlarged or elongated colon. He thought that many of the abnormalities in childhood were outgrown, but volvulus might occur if there were redundant loops of bowel present. The PRESIDENT described the termination of certain cases of megacolon with diarrhoea and coma.

Scarlet Fever

Professor SEYMOUR BARLING (Birmingham), Vice-President, took the chair, and Dr. W. R. F. COLLIS (Dublin) read a paper on the modern control of scarlet fever. He thought that the present terminology was misleading, for tonsillitis with erythema was called scarlet fever, and pharyngitis (caused by the same streptococcus) without a rash was regarded as a mild complaint for which no special measures were undertaken. Isolation of cases of clinical scarlet fever for six weeks did not stop the spread of the disease, and in a recent school epidemic Dr. Collis had attempted to follow the course of all cases by means of throat swabs. He thought that control of scarlet fever, including pharyngitis caused by the haemolytic streptococcus, should be by means of throat swab cultures.

Dr. A. GARDNER ROBB (Belfast) was against the use of throat swabs, and stated that he was more alarmed by the problem of nasal infection. Dr. J. D. ROLLESTON also protested against a bacteriological conception of scarlet fever, and he did not approve of swabbing throats of scarlet fever patients before discharge from hospital.

Cleft Palate

Mr. W. E. M. WARDILL (Newcastle-upon-Tyne) read a paper on cleft palate. He explained his approach to the operation, holding that functional results were all that mattered, and he had devised his operation so that the child then grew up naturally without after-training in speech. His procedure consisted essentially in narrowing the nasopharynx. Gramophone records were played to demonstrate the speech results obtained.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE

Thursday, July 22

Mental Effects of Head Injury

The second session was presided over by Professor LAMBERT ROGERS (Cardiff), when the subject for discussion was the mental manifestations of head injuries.

Professor E. MAPOTHER confined himself for the most part to problems of incidence and diagnosis. There was, he said, a great dearth of reliable information about the probable future course of head injury cases, and there were no figures for the amount of consequent mental disorder. The Board of Control statistics had, however, revealed no clear evidence of any rise in mental disorder in spite of the increase in road casualties. In military medical circles there seemed to be a conflict of opinion: some had claimed a rise in the incidence of psychosis following head injuries in warfare, while others had found very little trouble of this kind. There was a similar disagreement in reports from other quarters. Both psychosis and schizophrenia of psychiatric form were probably traceable to head injuries. Statistics from a group of mental hospitals south of the Thames pointed to an incidence figure of about 3 or 4 per 1,000; this was probably an underestimate, since many psychotic patients in whom the symptoms were not very troublesome were kept at home. In 5,000 private patients mental disorders had been traced to head injuries in 123 instances; ninety-two of these were undoubtedly of traumatic causation, and the remainder were probably so. The mental irritability after an accident was of doubtful pathogenesis, but constituted an important factor in prognosis. Professor Mapother thought that post-traumatic psychosis represented the last of a series of stages of degeneration of mental function. In traumatic psychasthenia there was some weakness of the higher mental states; the patient was detached from the outer world, and his internal mental mechanism was affected.

Dr. J. PURDON MARTIN approached the neurological aspect of head injuries by detailing the mental symptoms in various classes of cases and their physical accompaniments, and discussing their physiological nature and the pathological changes. He defined "unconsciousness" as the lack of conscious memory, but pointed out that the recovery of memory might often be very gradual, the patient remaining amnesic with regard to a variable period before the accident. Mental activity was at first low, and the early improvement was sometimes of the nature of conditioned reactions. Confusion and disorientation as regards time were frequent, especially when subarachnoid haemorrhage had occurred. Physical activity might be fully restored long before spontaneous mental activity had regained the normal in all respects. After being irritable, resentful, and abusive, the patient often became elated and childishly happy as the result of frontal lobe disturbance,

and this elation persisted for weeks or months, masking an anxiety state. The general tendency was for such mental symptoms to progress towards recovery within six months with some residual symptoms. In some cases, however, partial recovery was followed by dementia, especially in those aged over 55. Subarachnoid haemorrhage was the most likely cause of many symptoms. The degree of meningeal haemorrhage was an important causative factor. Traumatic neurasthenia was an unfortunate term for many cases of receding dementia with a basis in cerebral injury. True neurasthenic symptoms might be superimposed on a clinical picture of slight persisting dementia, but the prognosis was generally good. Gross hysterical manifestations after injury usually resulted from pre-existing tendencies in persons of poor mentality, but might be symptomatic of a degree of persisting traumatic dementia; minor manifestations might have an "escape" significance. Sometimes the injury seemed to precipitate an attack of depression in a patient whose mental constitution was of the cyclothymic or manic-depressive type.

Dr. F. E. PILKINGTON suggested a few lines of psychiatric treatment. He condemned the *laissez faire* attitude as being as bad as indiscriminate therapeutic activity. There were still persistent symptoms several years later in patients discharged as cured, so the present cheerful attitude towards prognosis could not be justified, especially since elation was common in the convalescence of head injury cases. Treatment in an ordinary medical or surgical ward was undesirable, as was also the environment of a mental hospital ward. One member of the medical team should be a psychiatrist, or the patient should be removed to a voluntary psychiatric clinic. Prolonged rest should never be synonymous with neglect—actual, or even imagined by the patient. Adequate sleep must be secured, by hypnotics if necessary, and the luminal group was useful; bromide treatment was especially dangerous in arteriosclerotic cases. The fear of becoming insane was not uncommon. Suitably designed reassurance might be very valuable, even when there was obvious organic damage. Compensation hysteria was a purely psychogenic phenomenon with a purposive objective, and it seemed to be becoming more common. It should be treated by a final lump sum settlement after the diagnosis had been complete and accurate.

Dr. H. HILTON STEWART (Belfast) discussed the mental changes in children. He offered a classification of groups according to the symptoms and the organic changes. In compensation hysteria the symptoms were often suggested to the children by the parents. The explanation of behaviour changes was far from clear, but some organic factor often unmasked a personality abnormality due to the environment. The evidence was sometimes difficult to elucidate, but it ultimately became clear and satisfying. The family background was an essential field for exploration in cases of head injuries in children. Mr. C. E. WINTERSTEIN said that boxing might have neurological and psychological sequels. Here compensation hysteria could be excluded. In fifty treated cases the consequences had been classifiable as: (1) the immediate ones after a single punch; (2) the remote effects of repeated injuries. In the first group a knock-out had been followed by loss of reflexes and amnesia; the latter might be strictly limited to the event, but retrograde amnesia varied in length. Sometimes also there might be an anterograde amnesia extending over the period when normal activities had been resumed for a long time. A post-traumatic state of this kind was not uncommon in head cases generally. The speaker contrasted this with the symptoms in trunk injuries ("punch drunkenness"), but mental dullness was commoner in patients of low intellectuality, who were more susceptible to punch drunkenness than were those with more sensitive temperaments. The cause of punch drunkenness was repeated multiple injuries; the syndrome was not progressive, and decreased when boxing stopped.

Dr. W. RITCHIE RUSSELL (Edinburgh) remarked that the phenomena of concussion originated from a jarring of the tissues of the brain affecting conductivity, but not demonstrable pathologically. Transient cerebral anaemia was probably not so directly associated. Crushed head injuries were often not followed by loss of consciousness. This jarring might be more severe in more serious accidents, and nerve elements be severed thus. Slight impairment of the higher cerebral functions was a common post-traumatic finding in minor accidents. Very young children who had just begun to speak retrogressed in this respect about six months after a head injury or encephalitis; this was due to impairment of vulnerable cortical control centres in early life. Some permanent impairment of the higher cerebral functions was much commoner than was generally supposed, and ought to be more carefully considered in assessing the after-effects of severe head injuries. The duration of retrograde amnesia was another important point. Dr. Ritchie Russell doubted whether cerebral irritability was so often due to subarachnoid haemorrhage as had been stated. Dr. JOHN THOMPSON (Belfast) held that more cognizance ought to be taken of interference with the blood supply to the cerebral cells, especially in elderly persons. This condition probably caused many symptoms, including the emotional changes.

Mr. W. MCADAM ECCLES pleaded for care in the use of terms in the law courts. Unconsciousness was a term hard to define. Could it be acknowledged as the condition when a person who had had a head injury did not realize what was happening around him? "Fits" might be much less than those of epilepsy, but they should not be lightly disregarded. Dementia should not be lightly mentioned, since it appeared to be looked upon as most serious and to preclude recovery. Traumatic neurasthenia was a very real condition to the patient, and often to his friends, but it was probably true that it dated from lack of proper early treatment of the head injury, often only a slight one, and maintained by the delay, often legal, in settlement of the claim. It was necessary, therefore, to be clear, decisive, and full of common sense in dealing with the mental effects of a head injury.

Dr. R. G. GORDON (Bath) said that in the lesser mental effects very obvious symptoms were mental inactivity and easy fatigability. These symptoms were probably due not to gross or even pathological changes such as could be seen at post-mortem examination, but to biochemical changes at the synapses analogous to those in the peripheral nervous system in myotonia. If success were ever reached in finding a method of estimating such central synaptic changes, a pathological interpretation of the symptoms might emerge. In children there were often obsessive phobias, but in some of these cases there was a neuropsychic habit fostered by the anxiety of the parents. It was important to remove these by early psychotherapy; otherwise, by accretions of other emotional experiences, they might become permanent obsessions. Sir E. FARQUHAR BUZZARD (Oxford) dealt with anterograde amnesis. He related a personal incident of a football accident which had been followed by loss of memory for the remainder of the match. He added that retrograde amnesia might provide some measure of the severity of a concussion. Professor A. A. MCCONNELL (Dublin) referred to some statistical evidence which had been forthcoming, and touched on the post-mortem evidence in these cases. He concluded that the question of prognosis would often be very difficult. Professor ROGERS thought that cerebral oedema was a very important consideration, and referred to a series of cases dealt with at Cardiff. Treatment by general dehydration of the body by magnesium sulphate had proved to be most effective.

Replying to the discussion, Professor MAPOTHER emphasized the importance of schizoid psychoses as common sequels of head injuries. He referred to the question how far the actual organic damage was related to the subsequent mental symptoms, and concluded that such relation was very small. In many cases gross injuries had given rise to few psychological sequels, and slight injuries to serious ones. Much turned on the previous life and

mental outlook of the victim. Amnesia was an extremely complex state. Retrograde and traumatic amnesias might be largely a matter of the patient being unwilling to think. The spread of popular psychology had much to do with the victims of accident cases complaining of loss of memory. Dr. MARTIN agreed that dementia was a most unfortunate term in this connexion and that it would be better to speak of traumatic psychasthenia. In head injuries the emotional state (elation) differed from that which was found in vascular lesions of the brain.

SECTION OF OPHTHALMOLOGY

Thursday, July 22

Squint and Heterophoria

With the President, Mr. J. A. CRAIG (Belfast), and subsequently Dr. P. J. HAY (Sheffield) in the chair, Mr. W. H. MCMULLEN opened a discussion on squint and heterophoria, with special reference to orthoptic treatment.

After reviewing the historical development of the subject he discussed the current theories on the causation of squint. The fact that concomitant squint frequently came on after acute illnesses had been used to support the view that squint was of muscular origin, either as a congenital weakness exaggerated by the illness, or perhaps as an acquired condition similar to post-diphtheritic paralysis. But all the evidence was against squint being due to a paresis of muscle, and, furthermore, in an obvious congenital or a very early squint paresis of muscle does not lead to constant squint. The accommodation theory advanced by Donders found its support in the often-repeated observation that squinters had high hypermetropia. None the less there were squinters with myopia, and not all hypermetropes were squinters. As recently modified the emphasis in this theory was on excessive convergence; this produced separation of the two images, and so helped by suppression to overcome diplopia. The view steadily gaining ground was the one which saw squint as a defect in vision faculty. It might, however, be held that the lack in binocular vision was the result and not the cause of squint, for in orthoptic clinics it was often found that good binocular vision gained by training could rapidly be lost in cases of persistent heterophoria. Moreover, cases with good fusion faculty were occasionally seen. Anisometropia had been blamed by many observers; but here again binocular vision might be present in spite of a high degree of this defect. The significance of heredity was assessed differently by different observers, and was intimately linked with the question of the nervous factor. In fact, some cases of squint fell within the province of the psychiatrist. The influence of environment was admitted by most observers; the affection seemed to be commoner among the poor. No agreement was yet possible on the question of the relation of amblyopia to squint. There was much evidence to support the view that amblyopia arose *ex anopsia*, but the possibility of macular haemorrhages in infancy could not be ignored. The recent developments of orthoptic training had a long history, going back quite clearly to Javal, and perhaps earlier to Roux in 1814. One point of significance that had emerged from the latest work was that squint training was possible at a later age than that which Worth had considered the upper limit, the age of 6 probably being the ideal. Mr. McMullen concluded with an account of the development of the orthoptic clinic in the Royal Westminster Ophthalmic Hospital and the reasons for the establishment of an Orthoptic Board.

Concomitant Squint

Mr. G. G. PENMAN followed with a paper on general considerations in the treatment of concomitant squint. He said that orthoptic training could not as a rule be undertaken in children under 4 years old, nor in those of any age with low mentality. Vision in the poorer eye had to be no less than 6/18, and the refraction fully corrected in all cases. Occlusion of the better eye was a valuable procedure, and in his exerience only less than 10 per cent. of squinters with amblyopia failed to recover sufficient sight to fit them for orthoptic training. He discussed the different methods of occlusion, such as the use of atropine in mild cases, and stripping the correcting lens, the Chavasse glass, the Doyne occluder, and adhesive plaster, in the more severe forms. Before orthoptic treatment could be usefully undertaken abnormal retinal correspondence had to be eliminated; where this could not be achieved orthoptic treatment would not help, just as it would fail where there was complete lack of the fusion sense and marked incomitance or vertical deviation. Generally forty-eight sittings were given, but the cases had to be kept under observation afterwards, as some required supplementary treatment. Good cosmetic and functional results could be expected in over half the cases by orthoptic treatment, which, incidentally, had raised the criteria of success. He considered that a standard method of recording results was most desirable, and submitted a scheme of his own.

Problems in Squint Training

Miss MURIEL A. PUGH, in discussing some problems in squint training, said that there were more unsolved problems in squint training than was usually admitted. Although squint cases could be trained to a considerable degree of binocular vision, it was often found that one eye remained dominant, and that this dominance was due not to a difference of visual acuity, but to the ratio of light values. The exophoria group exhibited the dominant eye, which also showed a parallelism between the lateral and vertical deviation—different in kind from the relation of hyperphoria to lateral phorias in the concomitant squints. Vertical phorias presented most difficulty. There seemed to be more than one type, and it was often difficult to assess the origin and history of the trouble. She held that special orthoptic clinics and expensive apparatus were not necessary for the treatment of many of the simple squints with true projection, and for the heterophorias which were likely to react to exercise. Simple stereoscopes used with the specially designed charts to correct either esophoria or exophoria, and the careful use of vertical prisms in the stereoscope in the cases of hyperphoria which were likely to react, gave as good results as more elaborate instruments, which were essential in cases of complicated deviation or marked defect in the binocular vision.

Heterophoria in Binocular Disharmony

Wing Commander P. C. LIVINGSTON read a paper on the role of heterophoria in binocular disharmony, with special reference to air pilotage. He classified heterophoria as symptomless and symptom-producing; either might be inherent or acquired. The one great cause of inherent heterophoria was dominant macular reception; where rivalry was present symptoms developed. Acquired heterophoria might come on at any period in life. He held that the part played by heterophoria in the induction and maintenance of a psychological state was not emphasized enough. Of the symptom-producing phorias heterophoria and exophoria with weakness of convergence were the most important with regard to air pilotage. He stressed the significance of the development of heterophoria as a result of prolonged fatigue from concentrated flying, from tropical asthenia, from malaria, or from head injury. Heterophoria thus produced did not tend to persist once the primary cause had been removed. These cases were generally those of inherent heterophoria becoming manifest under strain. One had to avoid the mistake of trying to develop a theoretical ideal; inherent heterophoria with dominant macular reception should be treated by an attempt to overcome a manifest phoria. Treatment of symptom-producing phorias always required a complete survey of the patient's mental framework. Orthoptic training was valuable as part of this scheme,

but it constituted a part only. The paper was illustrated by films bringing out the difficulties met with in flying.

In the discussion that followed Mr. J. D. M. CARDELL suggested that measles and whooping-cough might produce squint through a lesion of the fusion centre, and that in other cases aniseikonia might have a bearing on the aetiology. Mr. W. B. INGLIS POLLOCK (Glasgow) said that the avoidance of amblyopia involved early treatment by training or operation. Mr. R. AFFLECK GREEVES discussed the general factor in squint, and believed that nasopharyngeal sepsis tended to be overlooked. Mr. N. BISHOP HARMAN emphasized the more critical and confident attitude of the modern outlook on squint. He held that the correction of heterophoria was one of the most grateful tasks in ophthalmology. Mr. D. D. STENHOUSE STEWART (Hull) discussed acquired heterophoria, and instanced cases of its disappearance after the removal of an exciting cause. Dr. T. STEWART BARRIE (Glasgow) thought that whilst orthoptic treatment had a definite place, its value was limited by the age factor and the necessary selection of material. Mr. J. W. KILLEN (Londonderry) pointed out the dangers involved in too radical operative disturbance of the extra-ocular muscles. Mrs. BEATRICE H. LYNN (Belfast) and Mr. H. CAIGER (Sheffield) discussed points in the technique of orthoptic training.

Ectopia Lentis with Arachnodactyly

Miss EUPHAN M. MAXWELL (Dublin) reported in detail a case of ectopia lentis associated with arachnodactyly. Her patient, a boy of 10, showed typical skeletal changes, a miotic puil, subluxated lens, and extrasystoles. She discussed the theories of arachnodactyly, and drew attention to the view that arachnodactyly and other mesodermal syndromes have a common underlying factor (see *Journal*, July 3, p. 22). Her paper was illustrated by lantern slides.

Mr. ARNOLD SORSBY drew attention to the development of acute glaucoma in such cases owing to dislocation of the lens into the anterior chamber. Lieut.-Colonel R. E. WRIGHT, I.M.S., stressed the unsatisfactory operative results in this complication. Mr. J. A. CORKEY (Belfast) gave details of a family with arachnodactyly under his care. Dr. E. J. PRIMROSE (Glasgow) emphasized the partial character of the syndrome in some cases.

COMBINED SECTIONS OF RADIOLOGY AND PATHOLOGY

Thursday, July 22

Bone Tumours

With the President of the Section of Radiology, Dr. J. C. RANKIN, in the chair, Dr. R. E. ROBERTS (Liverpool) opened the discussion on bone tumours with a plea for the orderly interpretation of films. He had devised a scheme that included a list of changes in structure and in contour of bones in diseased conditions, which he submitted to the meeting. Most innocent tumours, such as chondromata and traumatic osteomata, had typical radiological appearances. Some malignant conditions were also typical, but many were very difficult. Dr. Roberts showed a large number of films illustrating these points, together with case histories. Biopsy, he thought, was often misleading, and *x*-ray treatment helped in the diagnosis in many cases. He had purposely avoided reading his original paper, which would be published later, and had confined himself to the demonstration of films.

Professor J. S. YOUNG (Belfast) speaking of the responsibilities of the pathologist, said that at the Royal Victoria Hospital, Belfast, open biopsy was a routine in all doubtful bone tumours. Many workers were violently opposed to this. It was essential to diagnose bone sarcoma before it metastasized. If radiography failed to make a sure diagnosis only two procedures remained—serial radiography and biopsy. Biopsy might increase the risk of dissemination of tumour cells, but, by the delay involved, serial radiography involved a similar risk. Bone tumours grew under mechanical restraint, and it was fair to assume that the hydrostatic pressure was higher than in soft tissue tumours. When haemorrhage occurred this pressure increased, with further danger of forcing tumour cells into the vascular channels. He thought that the hydrostatic pressure was more important in this respect than vascularity. He regarded Hoffmann's method of biopsy as 100 per cent. dangerous because of the haemorrhage which took place within the growth. Open biopsy was attended by no rise in pressure. Wood's experiments with rats showed that open biopsy was not attended by increased liability to metastasis. Of the seventy-four five-year cures in the American Registry of Bone Sarcoma no fewer than twenty had been subjected to biopsies, curettages, explorations, and excisions. The microscope was an instrument of much greater precision than the radiographic machine. Serial radiography and the radiodiagnostic test were dangerous because of the delay involved. In every case which could possibly be a bone sarcoma, open biopsy should be performed.

Mr. HARRY PLATT (Manchester) was unable to be present, his paper being read by Mr. H. O. CLARKE (Manchester). Diagnosis of bone tumours, he said, should be based on history, clinical signs, *x*-ray changes, and biopsy. Responsibility for diagnosis and treatment rested entirely with the surgeon. Bone tumour cases should all be dealt with at special clinics because of the comparative rarity of such cases. The dangers of biopsy were mythical, and it was a valuable aid to diagnosis. He performed the operation under a tourniquet, cauterized the deeper part of the wound, and closed the capsule. All bone tumours should be removed surgically. Certain early giant-cell tumours should be curetted and others excised. Amputation should be performed in sarcoma of long bones, combined with *x*-ray treatment of the chest and Coley's fluid.

Dr. J. F. BRAILSFORD (Birmingham) said that the clinician was becoming increasingly anxious to pass the responsibility of diagnosis on to the radiologist. In spite of a negative Wassermann reaction bone lesions might be syphilitic. The radiodiagnostic test was not dangerous unless the surgeon refused to intervene when radiation treatment failed. He thought biopsy was dangerous, since release of pressure caused more rapid growth. Less than 5 per cent. of the American cases survived ten years, and this was such a low proportion that he thought here was room for error. Histology might be misleading, sometimes because material was removed from the wrong place. The radiologist should be consulted about this. Necrotic neoplastic material might be mistaken for pus. Dr. Brailsford showed several films of cases in which the radiologist had been proved right and the surgeon and pathologist wrong.

Professor M. J. STEWART (Leeds) thought that immediate biopsy (frozen sections) was unfair to the pathologist, who had to give a far-reaching decision in a few minutes. The sections were never so good as paraffin sections. Different pathologists sometimes gave various opinions on the same section. Even the benign giant-celled tumour was sometimes difficult to diagnose; in order to be sure the matrix must not be unduly cellular, and the giant cells must be widely and uniformly distributed. Mr. F. C. PYBUS (Newcastle-on-Tyne) said that in 1929 he had acquired a pair of mice of the Simpson strain, which was prone to develop mammary carcinoma. In one of the descendants a sarcoma of the sternum had occurred, and he had succeeded in producing a strain which was liable to osteoplastic bone sarcoma. They developed metastases in the lungs, liver, spleen, and kidney. The advantage of this animal experimentation was that it provided ample material in the case of a disease which was comparatively rare. He proposed to investigate the causal factor in these mice.

Mr. STANFORD CADE recalled that seventeen years ago, at a meeting in London, one of the speakers summed up

the question of bone sarcoma by saying that all the patients died. Since that was so the danger of biopsy was a negligible factor. The difficulty about biopsy was that it often failed to make a diagnosis in otherwise doubtful cases. He disagreed entirely with Mr. Platt and Dr. Brailsford, and thought that both diagnosis and treatment of bone sarcoma were primarily radiological. If radiation failed surgery should be used. There should be a panel of skilled pathologists to whom sections in bone sarcoma cases could be submitted. Surgical measures rarely cured bone sarcoma or delayed the onset of metastases. Prophylactic *x*-ray treatment of the lungs was useless because when metastases later appeared in the lungs it was impossible to deal with them. At the Westminster Hospital all cases were treated by *x* rays or by radium beam therapy, or by both. Calcium in large doses should be administered to all cases.

Mr. R. C. ELMSLIE congratulated Dr. Roberts on his schedule. He thought, however, that increased calcification and decalcification were misleading terms, as was osteitis fibrosa. He agreed with Professor Young that biopsy should be done and a large piece of tumour removed. Immediate biopsy was unfair to the pathologist. Benign giant-celled tumours should always be treated surgically. He agreed with Mr. Cade that some form of bone sarcoma registry was necessary.

Dr. ROBERTS, in reply, said that he had included decalcification and increased calcification in his schedule because he had occasionally seen cases where those terms would apply. He thought that closer co-operation was needed, particularly between pathologist and radiologist.

Professor YOUNG, in his reply, criticized the surgeons because they sometimes removed tissue which was not representative of the tumour and blamed the pathologist for the result. He disagreed with Mr. Cade about the treatment of bone sarcoma. All except one of the cures in the American Registry were treated surgically. Dr. Brailsford had said that relief of pressure resulting from biopsy brought about more rapid growth. This did not matter, since surgical removal would be undertaken at once. He regarded Dr. Brailsford's tendency to speak in terms of radiopathology as dangerous. He thought that histopathology was much more reliable.

SECTION OF TUBERCULOSIS

Thursday, July 22

Surgical Treatment of Apical Cavities

With Dr. A. TRIMBLE (Belfast), a Vice-President, in the chair, Dr. CARL SEMB (Oslo) opened a discussion on the surgical treatment of apical tuberculous cavities.

In the treatment of pulmonary tuberculosis thoracoplasty meant first and foremost cavity therapy. It should achieve: (1) complete collapse of the cavity; (2) selective collapse of the diseased part of the lung alone; and (3) the operative risk must be small—the mortality should not be greater than 3 per cent. Dr. Semb stressed the importance of accurately localizing the cavity before operation, and discussed the mechanical principles underlying thoracoplasty. He preferred the term "relaxation therapy" to collapse therapy. In performing thoracoplasty the aim should be to mobilize the lung in a manner similar to artificial pneumothorax, so as to enable it to retract *concentrically* towards the hilum. He described the "ordinary" methods of thoracoplasty. Even those most extensive could not in all patients produce enough collapse of cavities in the upper lobe. There were definite disadvantages, too, in combining these thoracoplasties with extrapleural apicolysis: the latter might be difficult, dangerous, or impossible to perform, and the collapse was often incomplete. He had devised a modification with very satisfactory results. The apicolysis was carried out in the extrafascial plane, was combined with a radical rib resection according to the extent of the apicolysis, or more, and a new extrafascial space was prepared by cutting periosteum of ribs and other structures in such a manner that they were not loosened from the surface of the lung. The dropped upper lobe stayed put, instead of being "pulled" up again by the ribs later, as in extrapleural apicolysis. Moreover, no "dead extrapleural space" was left.

Dr. Semb described the technique and possible complications of his operation, and insisted on the importance of performing it in stages. He discussed the factors by which one must be guided in deciding the "size" of these stages. Evulsion of the phrenic nerve should not be done previous to a thoracoplasty. It increased the risk of post-operative complications. It might, however, give effective collapse when carried out afterwards. His results of the operation in over 250 patients since 1932 were: mortality within two months, 6 per cent.; dead later, 5 per cent.; complete collapse (as judged by radiography) in 90 per cent.; and tubercle bacilli disappeared from the sputum in 86 per cent. The results were even better since 1934, when he began using systematically small and several stages: among a total of 149 patients the mortality within two months was 3 per cent.; dead later, 3 per cent.; radiological complete collapse in 93 per cent.; and disappearance of tubercle bacilli in the sputum in 91 per cent.

Mr. J. E. H. ROBERTS agreed that many surgical procedures used at present did not give complete collapse of the cavity. An artificial pneumothorax often produced a collapse that was not selective, though it completely collapsed the cavity. These cases were sometimes not satisfactory also because the lung remained adherent at the first dorsal vertebra—when the lung was allowed to re-expand the cavity was apt to become patent again. He had rarely seen an apical cavity closed as the result of phrenic evulsion. The cavity had failed to close in at least half the patients treated by apicolysis and plombage. Some patients were too ill to undergo even the first stage of Semb's operation. The shock following the latter was due to the rib resection and not to the apicolysis. This was in favour of the method recently advocated—extrapleural apicolysis and maintaining the extrapleural space by the repeated introduction of air as in ordinary artificial pneumothorax. He had adopted this method in fourteen patients with encouraging immediate results. If the lung re-expanded in spite of refills, gomenol should be introduced.

Dr. ANDREW MORLAND said that in deciding what cavity demanded surgical collapse the probable mode of origin of the cavity must be considered. Where there had been extensive destruction of lung tissue spontaneous healing was less likely than in those cavities in which the inflation element predominated. Artificial pneumothorax should always be tried first. It might succeed in the most unhopeful-looking cases. His own experience with apicolysis had been most unfortunate. There could be no doubt that a cavity constituted a much greater danger to life than a thoracoplasty. It was important to choose the right time to operate. Dr. Morland discussed the contraindications. Tuberculosis elsewhere was not necessarily a contraindication. He thought that a preliminary phrenic evulsion might assist in resting the lung, and render the patient fitter for the major operation.

Mr. GEORGE A. MASON (Newcastle-on-Tyne) stressed that each case required treatment on its merits. He referred to methods of the future—tying the pulmonary vein, lobectomy or pneumonectomy, and direct drainage of cavities. When section of adhesions was not possible in a contraselective pneumothorax the phrenic nerve should be paralysed—temporarily at first, for healing of the cavity was obtained in only half such cases. The dangers of thoracoplasty carried out later were greatly increased when the diaphragm was paralysed. The maintenance of a contraselective pneumothorax until the completion of an upper thoracoplasty was of definite benefit. He spoke in favour of apicolysis with plombage in suitable patients.

Dr. G. S. TODD (Midhurst) emphasized that not all cavities needed surgical treatment as soon as they were discovered. The presence of cough and sputum, and thick walls, were, however, indications for surgery. He spoke in favour of phrenic evulsion for apical cavities when they were small and thin-walled. He was not convinced of the advantages of the crush operation. The danger of basal spread after thoracoplasty in patients who had had the nerve paralysed was probably exaggerated. The results of apicolysis with plombage had been most disheartening. After Semb's operation, which took longer than the simple thoracoplasty, convalescence was much more stormy. He had seen three patients in whom as the result of the operation the cavity had been merely pushed down into the middle lobe.

Mr. H. MORRISTON DAVIES (Ruthin) also referred to the possibility of the cavity being merely pushed downwards. The comparison between the principles underlying artificial pneumothorax and Semb's operation was not quite accurate. In surgical procedures it was essential to have compression as well. In the ordinary thoracoplasty it was important to allow torsion of the costal cartilages to take place. It was therefore a wrong principle to remove too much of each rib. The transverse processes should be removed, but scoliosis should be prevented. He spoke emphatically in favour of phrenic paralysis in selected cases. Mr. G. R. B. PURCE (Belfast) said it was surprising what could be achieved with adhesion section and phrenic paralysis in patients who had an ineffective pneumothorax. Dr. L. S. T. BURRELL advocated the trial of conservative treatment before resorting to surgery. The mere presence of a cavity was not an indication for collapse treatment. Dr. BEHRENS (Davos) described the method of extrapleural artificial pneumothorax.

Dr. J. CROCKET (Glasgow) then read a paper on artificial pneumothorax, with special reference to bilateral collapse. It appears in this week's *Journal* at page 261.

SECTION OF DERMATOLOGY

Thursday, July 22

Autophytic Dermatitis

With the President, Dr. G. B. DOWLING, in the chair Dr. HENRY MACCORMAC opened a discussion on autophytic dermatitis.

Dr. MacCormac said this condition was far from uncommon, and in its various forms might deceive every class of practitioner, including dermatologists. The number of recorded cases was now considerable. By the application of various external agents, or even by rubbing the skin, it was possible to produce a variety of dermatological conditions. The appearances might mimic various skin infections. The most important guide, however, to correct diagnosis lay in their inaccuracy of reproduction of a recognized disorder. A true occupational dermatitis might be deliberately aggravated or extended at will by the patient concerned. Admission to an institution and the application of occlusive dressings would, by the rapid healing of lesions which had persisted for months or years, reveal their true nature. At other times an inspection of the patient's belongings would be rewarded by the discovery of the causal agent. Sometimes, however, these occlusive dressings appeared to aggravate the eruption, and the speaker had devised a wire cage into which a part of a limb could be inserted and locked. The individuals who resorted to these deceptions were of different patterns, falling into groups which could usually be clearly separated: (1) The hysterical group, divided into (*a*) purposeless eruptions and (*b*) purposeful eruptions; (2) the malingering group; (3) the mischief group; (4) the phantom dermatoses. Group 1 (*a*) represented the most characteristic and deceptive class. There was no apparent object to be gained, and personal appearance might be severely damaged. Patients in this group were nearly always young unmarried women. In the most severe cases submission to surgical mutilation was not uncommon. He described several cases of his own and others to illustrate some of the features observed. Group 1 (*b*) were usually women of mature age who had been, or had become, difficult or unreasonable. There was an attempt to evade unwelcome duties, with simulation of illness to gain pity. Two cases of this nature were described. Group 2 consisted of those who wished to gain a monetary or other advantage, or to avoid a disagreeable duty. This kind of deception was met with during the war, and was often very difficult to detect. Thus a piece of tinfoil stretched over the skin and multiple punctures made through it rubbed over with sand, could produce a perfect imitation of a boil. Another example was the deliberate aggravation of an occupational dermatitis by a workman long after removal from contact with the supposed irritant. It would, however, be wrong and unjust to suspect as fraudulent more than a very small minority of this class of case. Group 3 cases were usually children, who as a class often enjoyed mystifying their elders. Either this fact or the natural instinct for mimicry would probably explain the epidemics of supposed alopecia areata which had been described in certain schools. Occasionally, however, an autophytic dermatitis might be observed in a child where a spirit of mischief seemed sufficient to explain the circumstances. Every practitioner had encountered the Group 4 type of patient who complained of a rash which he (the patient) thought was obvious, but of which the unbiased observer could see little or nothing. At the consultation, in the presence of an expert, the true state of affairs was seen. Such conditions might be closely related to the phantom dermatoses where the patient's imagination inflicts an eruptive process upon the skin. These conditions were apparently a form of hallucination.

Recognition and disclosure of the true state of affairs, Dr. MacCormac said, usually raised new and perplexing problems. The dermatologist could rarely satisfactorily explain the patient's perverted behaviour to the relatives. Nothing was gained by confronting the individual with the deception. The result was always an indignant denial. It was essential to be certain before expressing an opinion, as no diagnostic error was ever more resented. He had himself investigated the after-history of eleven young women who had had hysterical eruptions. All but one had ceased to inflict lesions on the skin, and some of the replies revealed the curious fact that the knowledge of what they did had been submerged or completely forgotten.

Dr. R. D. GILLESPIE said that he defined autophytic dermatitis as a "self-inflicted lesion where the patient persisted in denying the fact of self-infliction." This excluded "reflex" scratching of existing lesions and lesions produced by fidgety manipulation. It included, on the other hand, cases in which the primary interest need not have been that of self-deception. There was, he said, no single specific psychological mechanism even in the restricted sense of his definition. The more frequent motives were the avoidance of some difficulty or the gaining of attention, with which was mingled self-pity, and sometimes also resentment and revenge. But these motives could not be understood apart from the personality and general circumstances of the patient's life. In the group of neurotic personalities, especially the hysterical, the inner needs of the patient were of outstanding importance, and there might be little or nothing in the external circumstances to help to explain the condition. The suggestion that the lesions were inflicted in a "dissociated" state of mind usually had slender evidence to support it, even where there was a history of hysterical fits or similar phenomena. In one case of this nature evipan sodium narcosis proved useful in eliciting facts which had previously been withheld. In another group the lesion represented the "resolution" of motives: that is, it achieved

a compromise between the compulsive desire to inflict injury on another and self-punishment for this compulsion. In a further group the chief motives were exhibitionistic and erotic. In many of these cases the nearest relatives might be either reluctant, or even openly refuse, to accept the proper diagnosis. It might then be necessary to carry conviction to this quarter before the patient would cease to inflict self-injuries.

The PRESIDENT asked, What was the ultimate prognosis in these cases? In reply Dr. MACCORMAC said that complete recovery was usual. Dr. W. G. HARVEY (Dublin) doubted if trichotillomania was really a single entity. He thought that in some cases it might result from intolerable itching. Patients with exceptional vulnerability of the skin might present special difficulties—for example, cases of eczema or epidermolysis bullosa. Dr. H. R. FREDERICK (Port Talbot) described a case in which the hope of financial compensation seemed to be the most important factor. Dr. R. T. BRAIN mentioned the common forms of artefact lesions (excoriations, bullae, necroses), and referred to the difficulty in discovering the noxious agents employed. In two of his cases these had proved respectively to be smelling-salts and a blistering fluid contained in an old eau-de-Cologne bottle. Dr. MASON BOLAM (Newcastle) said that out of 17,000 new patients who had attended the Royal Victoria Infirmary in the last five years only twenty-five were diagnosed as suffering from autophytic dermatitis. Of these, twenty-one were females, and the average age was 19½. Dr. A. C. ROXBURGH and Dr. MCCARVILL (Dublin) also took part in the discussion.

Virus Diseases of the Skin

Dr. R. T. BRAIN, in a paper on the methods and difficulty of treating virus diseases of the skin, pointed out that in virus diseases specific therapy followed the usual bacteriological procedures, and depended upon the use of vaccines and sera. Unfortunately evidence existed which indicated that in some virus infections specific antibodies were practically ineffective when the virus had once reached a susceptible cell. Methods of producing active immunity in virus diseases were: (1) Vaccination with living virus: (*a*) human strain (for example, herpes); (*b*) with a virus modified by animal passage (for example, vaccinia); (*c*) attenuated by time or temperature (for example, rabies); (*d*) neutralized with immune serum (for example, distemper). (2) Vaccination with killed virus: heat, formalin, or phenol, and a further modification of virus absorbed on inert protein or other material. Methods of raising the antibody content of the blood in herpes by inoculation with living virus and dead vaccine were discussed, and the speaker said that some good results had been obtained. Specific therapy had been tried without any success in the case of warts and molluscum contagiosum. Some of the common non-specific methods of treating herpes, warts, and molluscum contagiosum were briefly mentioned, and reference was also made to the use of posterior pituitrin extract and sodium iodide in the treatment of zoster.

Minor Methods in Dermatology

Dr. F. A. E. SILCOCK (Leicester), in a paper on some minor methods in dermatology, first referred to triethanolamine. This was a trihydroxy-triethylamine which he thought was an agent of possible dermatological value. It was a clear syrupy liquid resembling glycerin in appearance, and had a specific gravity of 1130. It was alkaline in reaction, was almost odourless, and mixed freely with most liquids. It was an excellent emulsifier for soaps, creams, etc., and owing to its low alkalinity and resulting stability of emulsion was without caustic action on the skin. It would saponify some fats in the cold. Triethanolamine was a common ingredient of many cosmetics, and could be used advantageously in many dermatological formulae. He had found it useful in the removal of excessive grease and sebaceous material in cases of acne vulgaris or those with an oily type of skin. He described several formulae he had employed for this purpose. A piece of cotton-wool was moistened with the solution and then rubbed firmly over the affected areas for a few seconds till a thin soapy lather appeared. It was then rinsed off and the skin dried. There was only a slight temporary tingling sensation. The method was useful as an adjunct to *x*-ray treatment or as an alternative when such treatment was contraindicated. The speaker also described the use of trichlorethylene, which was not only useful as a domestic cleaner but also as a degreasing and cleansing agent. It was non-inflammable and mildly antiseptic, with a Rideal-Walker coefficient of 0.9. Dr. Silcock, in dealing with the treatment of herpes zoster, said that Head and Campbell had suggested that the pain in this condition resulted from nervous impulses passing from the posterior root ganglion in the sensory nerve. Goodpasture, however, found that it was due to the passage of the virus itself in the nerve sheath. The pain could be relieved in many of these cases by the intramuscular injection of "P.B.A." (percaine 0.5 per cent., benzyl esters 10 per cent., carbolic acid 1 per cent., in an oily base). He injected 2 c.cm. round the affected nerve; this could be repeated a few days later if required. The relief of pain sometimes occurred in a few minutes and was maintained for several days. In other cases he had found a four-fifths pastille dose of *x* rays useful when applied locally to the affected areas of skin. In the presence of vesication he used a 1/2 mm. or 1 mm. aluminium filter. He then showed several gadgets he had found useful, including a modified crochet-hook for removing the lining membrane of sebaceous cysts, some skin punches, and a small scalpel useful for the treatment of warts. He also demonstrated the use of vacuum-filled capillary glass bottles for the application of pigment solutions to local areas, and an apparatus for repeated intramuscular injections.

Dr. ROBERT KLABER mentioned two isolated cases in which ill effects had followed the use respectively of triethanolamine and trichlorethylene.

In the afternoon Dr. IVAN H. MCCAW gave a demonstration of cases and of pathological specimens in the King Edward VII Hall at the Royal Victoria Hospital. This was followed by a discussion, in which several members took part.

INTERNATIONAL SHORT-WAVE CONGRESS

[FROM A CORRESPONDENT]

The International Short-Wave Congress, held in Vienna from July 12 to 18, was an event of great interest and importance, and was attended by some six hundred doctors, physicists, and biophysicists from every country in Europe, from America, Egypt, and Japan. In three or four years of rapid development the value of short and ultra-short high-frequency currents in medicine, surgery, and gynaecology has become firmly established. In England, however, we have been strangely slow to take up this form of treatment, owing partly to insular prejudice, partly to questions of finance, and partly to the lack of medical interest in physiotherapy in our teaching hospitals.

Section of Physics

The Congress comprised three Sections: Physics, Biophysics, and Medicine. The Physics Section, presided over by Professor Esau of Jena, whose researches enabled Schliephake to evolve the principles of short-wave therapy, discussed the future possibilities of television, questions of interference, the part played by ultra-short waves in aviation, chemistry, and recent ionosphere work. The rest of the time of the section was devoted to practical

questions regarding distribution, absorption, and measurement of energy in the short-wave field and the recently invented instruments for measurement, output, and dosimetry. The generation of centimetre and millimetre and hectomicron waves by the magnetron, and the value of these waves for scientific measurement, were also discussed.

The shortest wave-length produced hitherto in America measures 6 mm., but Professor Esau has succeeded in obtaining one of 4.9 mm. The energy of these tiny waves is of course infinitesimal, but it is hoped in the near future, by the aid of certain optical instruments, to increase the output of energy ten million times.

Biophysical and Medical Section

In the Biophysical and Medical Section the three chief problems were (1) dosage, (2) specific electric effects other than that of heat, and (3) selectivity of wave-length. Two papers of much interest in this section came from the Institute of Medical Research at Frankfurt, from Professor Rajewesky, who succeeded Dessaur there, and from Dr. Schaefer. The former discussed the electrical properties of biological tissues at various frequencies, and showed the value of such measurements in revealing the microscopical structure of living tissues and in distinguishing between the normal and the pathological. Dr. Schaefer demonstrated the influence of human-cell and animal-cell structure on the energy distribution of ultra-short high-frequency currents, and both he and Dr. Pätzhold showed the dependence of depth effect on adequate spacing.

The president of the Medical Section, Dozent Liebesny, demonstrated the importance of "athermic" treatment in acute inflammations and in tuberculous conditions by films and on living patients who had suffered from various forms of surgical tuberculosis and were all cured by athermic short-wave treatment.

Section of Medicine

The Medical Section dealt with results and methods of applying short-wave therapy to acute and chronic diseases, and many papers were of great interest and value. The discussion was opened by Professor Schliephake, who laid stress on the chief indication for short-wave therapy—that is, acute inflammations and suppurative conditions in the skin, sinuses, antra, lungs, and pelvis. The secret of success in applying short-wave therapy to these conditions is mild dosage and low intensity. He considers that the improved results from this athermic treatment give another proof of the value of specific action other than that of heat.

It is impossible in this limited space to mention all the interesting papers read in the Medical Section; two were outstanding—one by Professor Wintz of the Erlangen Frauenklinic, the other by the Berlin ophthalmic surgeon Gutsch. Professor Wintz admitted that the first results of short-wave therapy at Erlangen had been disappointing owing to deficient technique, to the use of unsuitable and too long wave-length, and, above all, to the low output of the apparatus then available. With these it was impossible to attain success in deep-lying organs.

For the last two years, however, apparatus of adequate output has been supplied; great advances have been made, and the results of short-wave therapy are now so good that it has become the most important form of treatment at Erlangen. Its chief indications are acute inflammatory processes, adnexitis, parametritis, and inflammatory tumours of the adnexa, including those due to gonococcal inflammation. He finds it also of value in many conditions of endocrine failure, hypoplasia, amenorrhoea, etc., also in menopausal disturbances not due to toxic factors. This form of therapy is contraindicated in all tuberculous infections of the genital tract and in malignant disease.

Complete details of the Erlangen technique were given for both acute and chronic conditions, such as wave-length, time, dosage, the best possible couch for treatment, position of patient, etc. Athermic therapy is of value on commencing treatment of acute cases. In all chronic forms of disease, however, heat is a necessity. Everything depends on the correct technique and on accurate medical observation.

Dr. Gutsch of Berlin gave an interesting survey of 700 eye cases treated successfully in his clinic by short waves. Here again good results are obtained in acute inflammatory conditions: serpiginous ulcer and hypopyon, abscesses of orbit and vitreous, post-operative inflammations, and infected wounds. In all these conditions the results of short-wave therapy are far superior to those of diathermy in rapid relief of pain and inflammation and in the homogeneous depth effect.

The best results of all, Dr. Gutsch considered, were attained in the posterior orbit—that is, in diseases of the iris, choroid, and retina. These parts, hitherto inaccessible to most forms of local treatment, respond particularly well to short-wave therapy: the active hyperaemia, and rapid resorption of exudate and haemorrhages and oedematous swellings, are remarkable. He gave details of the technique worked out by experiment on his own eyes and those of his co-workers. Athermic treatment with the ultratherm is the rule, and the 6-metre wave-length has on the whole been found most suitable. No bad effects of any sort have been observed. His good results were confirmed by workers in Mellor's eye clinic in Vienna, where, however, apparatus of lower output—namely, 30 watts—is used for most eye conditions.

During this crowded and interesting week all the members of the congress were magnificently entertained by the Government of Austria in the beautiful castle of Schönbrunn, the home of the Hapsburgs, and also by the Mayor of Vienna at the great historic Burg of Falkenstein. The Vienna Congress of 1937 has left us with much evidence as to the properties of short and ultra-short high-frequency currents, and has given a great impetus to the future development of short-wave therapy.

A TOUR OF SCANDINAVIAN HOSPITALS

Representatives of the Westminster Hospital who left England in July at the invitation of their chairman, Mr. Bernard Docker, to visit Scandinavian hospitals had a most interesting trip. The party included Mr. J. D. C. Couper, a member of the building committee, Mr. E. Rock Carling, the senior surgeon, Mr. Charles M. Power, the secretary, and two governors, Mr. John Docker and Mr. Edward Joynson. Great hospitality was shown by Government health officials, hospital authorities, and the leading medical men of each city visited.

Visit to Stockholm

Three days were spent in Stockholm, where Sven Ahlbom, architect of a new general hospital of 1,200 beds, which will be ready for occupation in six months, showed them every detail of this building. Much time was also spent in studying, with the aid of the architect-engineer, Hjalmar Cederstrom, the plans and models of another new hospital of 1,500 beds now being built by the municipality. A morning with Professor Berven at the Radium Institute, which will be removed to the nearly completed new general hospital, revealed remarkable work done under difficult conditions. A State-aided "follow-up" system organized for cancer patients enables former patients to return for examination.

In new Swedish plans the delegates found marked resemblance to the plans for their own new hospital, especially in the matter of small wards and the out-patient scheme, which will bring out-patients and in-patients together under one administration. It was noted also that Sweden has the same problem as this country, inasmuch as there is now hospital provision for the rich and the poor, but a marked lack of provision for the middle class.

Helsingfors, Tallin, Danzig

At Helsingfors Professor Wichmann's gynaecological hospital was the chief object of interest. Professor Wichmann came back specially from Copenhagen to spend the evening discussing his hospital and the problems connected with his work. The Red Cross emergencies hospital was also inspected.

At Tallin, Estonia, an interesting private nursing home and a military hospital of 350 beds were inspected, and the visitors found in Professor Stamm a most enthusiastic surgeon and authority on hospital planning. At Danzig Professor Volthard and Professor Klose took a great deal of trouble to explain the organization of the city's hospital services. The Municipal hospital supplied material for observation and comparison, and the visitors were much impressed by the extensive well-organized and equipped radiographic department.

Copenhagen

Copenhagen, with the inspection of four hospitals, completed the tour and provided possibly the most interesting feature of it, the orthopaedic hospital there being alone regarded as sufficient recompense for the whole of the trip. The visitors had as their guide Chief-Surgeon P. Guildal, adviser to the Danish Board of Health, who took the main part in planning this great hospital centre. At Copenhagen the visitors also saw the Finsen Institute, and found much of interest in Professor Lomholt's work and description of this organization, which now includes the magnificently equipped new radium centre recently opened by the King of Denmark.

A report prepared by Mr. Bernard Docker, Mr. Rock Carling, and Mr. Power will be available for the use of other British hospitals seeking information about the practice and equipment of the hospitals seen on this tour.

RESEARCH FELLOWSHIPS IN TROPICAL MEDICINE

The Medical Research Council, on the advice of its Tropical Medical Research Committee, has made the following awards:

Senior Fellowship.—Frank Hawking, D.M., D.T.M., assistant lecturer in pharmacology, Welsh National School of Medicine, Cardiff. This is tenable for three years, for investigations to be made mainly in the Tropics. Dr. Hawking will work in Africa on the chemotherapeutic treatment of sleeping sickness.

Junior Fellowships.—David Alexander Cannon, B.Sc., M.B., Ch.B.; John Leslie Dales, M.B., Ch.B., assistant pathologist, Royal Hospital, Sheffield; Ian Wilson MacKichan, M.B., B.Ch., house-surgeon, London Hospital. These are also tenable for three years, during the first two of which the holders will undergo training in this country in tropical medicine and in the use of research methods.

The Joint Tuberculosis Council announces that arrangements have been made with Dr. W. J. Fenton, the dean of Brompton Hospital, for courses of fourteen sessions in artificial pneumothorax work, each course to extend over a fortnight. The classes will be held on Mondays at 10 a.m. and 2 p.m., Tuesdays at 10 a.m., Thursdays at 6.30 p.m., Fridays at 10 a.m., and Saturdays at 10 a.m. and 2 p.m. Included in the courses will be two lectures on the general aspects of artificial pneumothorax therapy and detailed instruction in screening. After the members of the class have had a few days' experience of the practice at Brompton Hospital they should perform the actual refills, and, if possible, an induction themselves. Each course will be limited to four members. The duration of the clinics will vary with the number of cases to be dealt with, but an average of two hours is a near approximation. The fee for the course is £5 5s., and all inquiries should be addressed to Dr. William Brand, honorary secretary for postgraduate courses, Joint Tuberculosis Council, 8, Christ Church Place, Epsom, Surrey.

Local News

INDIA

The Armies in India

Volume II of the annual report of the Public Health Commissioner with the Government of India for 1935, which has recently been published, deals with the health of the British and Indian Armies in India, and reveals that in both cases there was a reduction in disease. In that year the combined ratio for the British Forces of those constantly sick in hospital and under treatment as out-patients was 47.42 per 1,000 of the strength, as compared with 49.19 in 1934. The decrease in the incidence of cerebrospinal meningitis continued; triple concentrated serum was the usual treatment, but in three cases iodine was also given intravenously with complete success. The incidence of sandfly fever remains unaltered, and no good system of prophylaxis has been discovered, nor have attempts to infect mice with material from human cases and so to secure a fixed virus proved successful. It is noticeable that, both with barracks and bungalows, the majority of men occupying old buildings with mud walls invariably succumb, whereas in new or well-repaired buildings the occupants escape, provided rubble heaps and other potential breeding places in the vicinity are removed. Some caution seems to be called for in the differential diagnosis of fevers of the typhus group; this at present turns on laboratory findings and is rendered uncertain by the possibility that enteric group infections might have some influence on proteus OX agglutinins in the serum. It is considered, therefore, that at present search must be continued for the enteric group of bacilli even in the various OX positive cases, especially in those in which the disease is mild and there is no rash. Further investigations in regard to this problem of diagnosis are proceeding. An outbreak of cutaneous and faucial diphtheria in a battalion engaged on the North-West Frontier in the autumn of 1935 presented some curious features. Abrasions of the skin caused by the rocky country were found in some cases to be harbouring Loeffler's bacillus, and there was also faucial diphtheria in some though not in all. For the treatment of these cutaneous cases diphtheria antitoxin was injected intramuscularly and also applied locally as a dressing. In most instances the ulcers were healing by the fourth day, and diphtheria bacilli could no longer be recovered from them. In some, however, the organism persisted in spite of there being a healthy granulating surface and serum treatment being prolonged; the best results here were obtained by applying mucidan as a dressing. The incidence of the enteric group of fevers increased slightly in the British Forces as compared with 1934, which was the lowest on record; in the Indian Forces there has been a progressive incidence since 1932, which is only partly explained by the fact that previously some cases of typhus were included as the result of faulty diagnosis. There has been very greatly improved bacteriological investigation of these cases during the last ten years. In 1935 there were nine deaths among the British and thirteen among the Indian troops, and in nineteen of these death occurred before the end of the second week, suggesting either an overwhelming infection or an ambulant type of the disease. Both the admission and death rates in men under one year's service in India fell markedly in 1934 and 1935 as compared with men whose service had been longer, and it is concluded that this fall may reasonably be attributed to the T.A.B. vaccine manufactured at the Royal Army Medical College since 1933. The case mortality was, however, disappointingly high during 1934 and 1935, mainly owing to the type of case previously described. The percentage of cases occurring within the first six months after reinoculation has remained almost constant during a period of seven years

at just above 30 per cent., which still appears unduly high, but no explanation is at present forthcoming. The incidence of dysentery remains stationary, and reasons are given in the report for fearing that this will continue to be the case until efficient sanitary services and a sanitary conscience have been developed, not only in military establishments but throughout the country. One of the striking features of the post-earthquake period in Quetta was a dramatic fall in the dysentery incidence among the troops. For several years previously the incidence in that station had been high and was actually increasing in spite of the most stringent precautions in the military area. The fact that from 1930–5 there were 21,000 fewer admissions for dysentery among Indian troops reflected the steadily improved sanitation among them since the post-war period, but, as in the case of British troops, it is feared that the position has now become stationary. Quetta was the second worst station in respect of malaria in 1934, but headed the list in 1935 with Peshawar and Agra second and third respectively. Efforts are being made to secure more protection in the new cantonment at Quetta, but unfortunately the main breeding stations lie outside military control. Very great improvement in this respect was noted in Delhi for 1935. Since the use of plasmoquine in the Army in India became almost universal the chronic relapsing cases of benign tertian malaria have almost disappeared; this treatment is generally preceded by atebrin.

Public Health in Bombay

In his report for the year 1935–6 Dr. J. S. Nerurker, executive health officer for Bombay, states that the excess of births over deaths was unequalled before 1931, the number of live births being now the highest on record since 1866, when such statistics began to be noted. The death rate was higher than in the previous year, owing largely to an epidemic of small-pox with 402 deaths, and increases in the mortality due to respiratory diseases and tuberculosis, dysentery, measles, and cerebrospinal fever. There were decreases in respect of plague, influenza, ague, and malaria. The population of Bombay is now much in excess of the census figures obtained in 1931. The previous negligence in registering births has been overcome to some extent by the provision of maternity benefit for the labour classes, which constitute 74 per cent. of the population of the city. The death rate among infants under the age of twelve months has increased in the poorer classes, mainly in consequence of respiratory diseases and immaturity; special efforts are being made to combat this by providing municipal district nurses, attendance at confinements, necessaries and comforts during the puerperium, maternity homes, and infant welfare centres and milk depots. The small-pox epidemic was responsible for 1,248 deaths, as compared with 152 in 1934; emphasis is placed by Dr. Nerurker on the vital importance of revaccination, which at present is optional in Bombay. The figures for the attendances at venereal clinics show that the proportion of new patients having primary syphilis and acute gonorrhoea is rising. Pre-nuptial examination is also becoming more popular. Difficulty is still experienced, however, in convincing patients of the need of submitting to the long treatment and the repeated tests for ensuring cure. The quantity of milk available is said to be inadequate, and its quality leaves much to be desired, though strenuous steps are now being taken to rectify these deficiencies. Dr. Nerurker concludes by stating that the principal causes of the insanitary conditions which maintain the death rate at a high level, even in non-epidemic periods, are the insufficiency of the sewers, the continuance of the basket privy system of conservancy, the density of houses and persons per acre, and the overcrowding in rooms and tenements. The water supply is adequate, the whole being chlorinated throughout the year, and no provision being made for filtration. The medical department is actively engaged in propaganda work and health education.

SCOTLAND

Edinburgh Venereal Diseases Scheme

The annual report for 1936 of the City and Royal Burgh of Edinburgh Venereal Diseases Scheme records the transfer of the wards and clinics at the Royal Infirmary to the new pavilion, which is shared with the department of dermatology. The number of beds available for venereal cases at the Royal Infirmary is now thirty-eight, and a further fifty-two are distributed among other hospitals in the city. In-patients treated during the year show an increase of 20 per cent. over 1935. It is stated that in female cases of severe gonorrhoea or syphilis a spell of intensive treatment in hospital is beneficial, shortening the subsequent period of out-patient attendance, and minimizing the risk of complications, which are especially prone to occur at the menstrual periods. An increase in the number of admissions to the two maternity hospitals indicates a greater interest in ante-natal examination, foreshadowing a diminished incidence of congenital syphilis and ophthalmia neonatorum. The report, stressing the difficulty of combating gonorrhoea, points out that the early symptoms in women are often extremely mild, and that, without microscopic examination, many cases must be overlooked. Also contraceptive practices, which now enjoy a wide vogue, give an impression of security against infection which may not be justified. It is suggested that, from the point of view of prevention, the provision of a hostel for the reception of infected girls is desirable. By this means girls could be removed from the streets during the period of infectivity. With regard to treatment of this disease the administration of acriflavine compounds, in addition to the usual routine irrigations, is producing encouraging results, the tendency to cause jaundice, noticeable in earlier preparations of this type, having so far diminished that no case of jaundice has yet appeared in the course of the investigation which is still proceeding.

Weil's Disease in Aberdeen

The annual report for 1936 of the medical officer of health for the City of Aberdeen includes an account of a special investigation into Weil's disease conducted by Dr. John Smith, regional bacteriologist. The incidence of this disease among fish workers in the city has created a special problem for the health authorities during recent years (*British Medical Journal*, 1934, **2**, 1137, and 1936, **2**, 1048). During the year under review sixteen cases came to the knowledge of the department, all occurring among employees of the fish trade. Each patient received institutional treatment, and there was one death—a male adult. In the previous year the number of cases was forty. It is stated that Dr. Smith's investigation has been directed towards producing an active immunization of the workers. Experiments on guinea-pigs demonstrated the development of a solid immunity, following the vaccination of the animals with living non-virulent strains or with killed emulsions of virulent strains of *L. icterohaemorrhagiae*. In view of this satisfactory outcome of animal experiments it was decided to test the effect of leptospiral vaccines on selected hospital patients. Mild cases of scarlet fever were chosen, in which the illness had, for all practical purposes, terminated within forty-eight hours of admission of the patient, the majority of whom were children between 8 and 14 years. Three series of patients were vaccinated, each series with a different preparation. Little local disturbance and no general reaction accompanied the vaccinations. In none of them, however, did vaccination stimulate the production of demonstrable immune bodies to the extent that might have been expected. The findings indicate the need for increased dosage to stimulate the further production of immune bodies. It is suggested that their presence, even in small

amounts, should be sufficient to give ample protection, since in the case of patients in the early stage of a leptospiral infection treatment with a dosage of anti-leptospiral serum, insufficient to produce demonstrable foreign immune bodies in blood samples, shows definite clinical evidence of its curative effect. It would therefore appear desirable to vaccinate workers whose daily duties expose them to a possible attack of leptospirosis.

ENGLAND AND WALES

The Hospitals of London

King Edward's Hospital Fund for London has issued a *Statistical Summary* for 1936 (1s., or 1s. 5d. post free, from 10, Old Jewry, E.C.2) of the income, expenditure, work, and costs of 145 London hospitals, from which it appears that there were increases in subscriptions, donations, and receipts on account of services rendered, the total amounting to £3,798,842 ordinary income, as compared with £3,647,311 in 1935. The income from legacies showed a definite fall, however, and the total general fund income amounted to £4,195,925, as compared with £4,196,170 in the previous year. The total general fund expenditure rose from £4,075,115 to £4,259,598, and thus there was a net deficit for the year under review of £63,673, as compared with a net surplus of £121,055 in 1935. This publication comprises an analysis of the general fund income and expenditure of the 145 hospitals, with statistics relating to bed accommodation, patients, and the cost of working, together with particulars of pay-beds and hospitals for infant welfare. It thus enables a financial computation to be made of the position of these hospitals at present, and certain detailed and general deductions can be drawn. Public benevolence towards the sick poor and accident cases still continues at a most meritorious height, but the inevitable expenses show no sign of any reduction, nor is it possible to envisage such relief in the immediate future. There are more in-patients and out-patients; the cost of their treatment has naturally increased slightly, but it would seem that all possible economies are being introduced. The figures for renewals and repairs have somewhat increased, as have also those for provisions, salaries, and domestic activities. These figures do not include capital sums required for rebuilding or for buying new apparatus, and it must be realized that the requirements of this kind will not decrease in the near future but are more likely to extend. The hospital economy committee of the King's Fund is doing its best to assist hospitals in any difficulties experienced in putting into operation the methods of internal control outlined in the appendix to the Revised Uniform System of Hospital Accounts, and the general public may rest assured that everything possible is being done to ensure that all financial assistance is being utilized wisely and well. There are now 18,200 beds available, nearly 200 more than in 1935.

Distribution of Measles Serum

The London Fever Hospital, Liverpool Road, N.1, has asked us to point out that, owing to the great difficulty in obtaining a large amount of convalescent measles serum, its small supply, while always available for the general public, has to be reserved for young children and more especially for weakly and ill children in whom an attack of measles would be dangerous. It is impossible to supply this serum for every contact. The hospital has asked us to publish this to avoid in future the irritation of disappointment of a refusal when general practitioners wish to protect older people. The resident medical officer is, however, always glad to hear of cases in which the serum can be rightly used.

Correspondence

Care of the Vocal Cords in Singers

SIR,—The exigencies of immediate publication prevented me from including in my paper, read in the Section of Oto-rhino-laryngology at Belfast and published in your issue of July 31, an observation which I think is of some importance and which completes the argument I there advanced.

In the paper itself I ventured to make the generalization that there is no such thing as a natural singing voice. I stated that I had never heard of a leading opera singer or even a chorus singer at Covent Garden who had not been taught how to sing, and that singing is an acquired art; wherefore it follows that with increased knowledge and experience and more care of the vocal cords the best voices have yet to be heard.

An interesting comment on this view is afforded by an experience I have had of original singing of the same kind as must have been heard perhaps thousands of years ago. From 1923 onwards I have had the good fortune to visit Central and East Africa on many occasions, traversing unknown paths in the Sudan, Abyssinia, Uganda, Kenya, and Tanganyika. In the remote parts of these areas, especially on festival days, I came across occasional groups of primitive natives singing either casually among themselves or deliberately to encourage dancing, which would go on for hours on end. The singing was accompanied by tom-toms, the drums originally used for conveying messages or warnings from tribe to tribe. But what singing it was! None of the women or children sang, but only the men, and in their singing voices there was not a semblance of resonance, harmony, or musical quality, the notes being usually limited to three or four. In all these regions this rough production and quality was about the same. Among these people there was no balance or synchronization between the singing and the speaking voice. Yet the vocal cords of the primitive African are the same to all appearance as those of the cultivated European. If singing is a natural endowment the apparatus is available.

This observation appears to me to bear out the point I made in my paper that the vocal cords are not constructed by Nature for singing purposes.

If there is any fallacy in this comparison I should be happy to have it pointed out. Let me apologize to you, Sir, for taking up your space with this postscript.—I am, etc.,

London, W.1, July 31. MILSOM REES.

Visual Standards for Aviators

SIR,—In view of the publicity which is now being given to the visual standards set for civil aviators, and the criticisms which are being offered in this connexion, may I reply to the letter by Mr. Myles Bickerton printed in the *Journal* of July 17?

First of all, nearly everything in this connexion was discussed in my lecture before the Ophthalmological Congress in Oxford this summer, and will appear in due course in the *Transactions*. For our present purpose it should be realized that we are dealing only with civil aviators. Now civil aviators have this peculiarity—namely, that they are not a local or even a national affair, but become international property so far as their medical (in-

cluding visual) standards are concerned. It is evident that my friend Mr. Bickerton, with whom I shared both the dissecting room at Cambridge and parts of the River Cam during our mutual studies at the University, has never faced the International Convention of Air Navigation in Paris with the purpose in hand of fighting for reasonable visual standards in the interests of our civil pilots and of flying in general. Had he done so he would appreciate that it is no mean task.

The last two visits to Paris have been devoted by me in endeavouring to obtain certain reductions in visual acuity for B licence (passenger-carrying) pilots, and also some alteration in the strict ruling for colour vision. The A licence pilot has in these discussions followed the same pathway, his visual acuity, however, being based on correction by glasses to the necessary vision.

The feeling which tends to creep into aviation circles that the medical authorities are working overtime to make things difficult is unfortunate, as exactly the reverse is the case. The consultant staff at the Central Medical Establishment are constantly reviewing the standards in order to fit that which is practical and common sense into the general scheme of progress. If this particular work in Paris had not been undertaken in the interest of civil pilots, several of our best men would now be on the ground.

The whole point at issue with regard to *one-eyed* pilots is that of their danger, not to themselves if it amuses them to take risks in the air, but to others who, being visually normal, may become the victims of their fellow club-member's blindness. As I said in my Oxford lecture, the problem of the bad eye is not one of *visual acuity* but of *visual field*, as there is no question whatsoever that a pilot with a completely blind eye, either through extreme injury or actual excision, is a source of very potential danger to others in the air. If, as Mr. Bickerton remarks, there are 700,000 people handicapped in this fashion in varying degrees, it is the more important that we proceed with reason with regard to the slackening of standards. I wonder what the attitude of the passenger of the air would be towards his future travel if it was shown at a coroner's inquest that a one-eyed A licence pilot, through his visual handicap, had turned into an air liner in flight and killed the occupants?

I know of no regulations passed regarding pre-1919 pilots being permitted to fly on an A licence having sustained loss of one eye. All present standards fall within I.C.A.N. regulations, a large volume of some 120 pages, and certain local British adjustments for our own benefit, set down in Air Navigation Directions 1936 (A.N.D. 13), obtainable from H.M. Stationery Office.—I am, etc.,

P. C. LIVINGSTON, F.R.C.S.Ed., D.O.M.S.,
Wing Commander; Consultant in Ophthalmology, Royal Air Force.
Central Medical Establishment,
Royal Air Force,
July 27.

Pulp-space Infection

SIR,—I read with interest Mr. James Hardman's admirable review of pulp-space infection in the *Journal* of July 24 (p. 156). I would especially commend his classification and the influence which this has on the actual incision.

In 1930 I was instrumental in inaugurating a "septic hand clinic" at the Liverpool Royal Infirmary, as I felt that the importance of these conditions could not be overestimated. Although agreeing in the main with Mr. Hardman's views, I dislike the transfixion operation which he advocates. Kanavel points out that the blood supply of the diaphysis of the terminal phalanx is derived largely from the vessels in the closed fibrous compartments of the pulp, and that thrombosis of these vessels causes bony necrosis. A transfixion operation such as Mr. Hardman practises must divide many such vessels running to the periosteum, and thus predisposes to necrosis of bone. A lateral incision down to, and draining, the pus pocket need not necessarily transfix the finger, and will not injure more vessels than is absolutely necessary.

Again, it is not desirable to use rubber drainage material in the majority of these cases, as the pressure of the rubber drain sometimes tends to cause sloughing of the fibro-fatty "filling" of the pulp. The finger is already swollen, and a linear incision immediately becomes an elliptical gap providing adequate drainage without any further interference. Sloughing of part of the fibro-fatty pad can cause as serious sequelae as necrosis of the diaphysis, since the loss of the pulp leaves the digit with a tender extremity not suited for pressure-bearing, and permits the nail to become deformed, curving forwards towards the ventral aspect. Lastly, a straight wooden splint maintains the finger in an uncomfortable posture; a small curved metal gutter splint allowing slight flexion at all three joints is preferable.—I am, etc.,

Liverpool, July 26. J. COSBIE ROSS.

Elongation and Dilatation of the Colon

SIR,—Professor J. R. Learmonth's interesting and instructive contribution to your issue of July 24 (p. 154), while well calculated to clear the ground and to emphasize the fundamental distinction between megacolon proper and the peculiar redundancy of the colon known as dolichocolon, appears to shrink from some of the conclusions which can be drawn from a consideration of this somewhat difficult subject. Without agreeing with Mr. Slesinger (*Lancet*, 1926, **2**, 274) that dolichosigmoid forms in itself a sufficient indication for colectomy, we must maintain the standpoint we took in your columns four years ago (1933, **2**, 1), that dolichosigmoid, though not in itself a "surgical lesion," is, from its nature, peculiarly liable to give rise to surgical complications. The occurrence of mesosigmoiditis, or of adhesions following pelvic inflammation, etc., will tend to fix and approximate the ends of the elongated loop, and if the elongation is sufficient all the factors required for the production of a volvulus are present.

The study of the clinical and radiological features in such cases led us to the view that a certain class of patient, not by any means of extreme rarity, does actually suffer from symptoms due to recurrent attacks of sigmoid volvulus. They present exactly the features long ago described by Edgren and others as premonitory of sigmoid volvulus, as noted in the previous histories of patients admitted for acute intestinal obstruction from this cause—namely, chronic constipation, pain on defaecation, attacks of local distension, attacks of colicky pain followed by watery or sometimes blood-stained diarrhoea, the diarrhoea being caused by a transudation from the bowel consequent on venous occlusion from torsion. Such cases are still too often classed casually as "colitis" without any genuine attempt being made to arrive at a correct diagnosis.

Their radiological examination, which must include a combined air-and-barium filling of the colon, will show: (i) an elongated sigmoid, the essential predisposing factor; (ii) fixation and approximation of two points at either end of the loop; (iii) occasionally an actual torsion of the

folds of the colonic mucous membrane will be seen, generally above the lesion.

The combination of (i) and (ii) may give rise to recurrent attacks of volvulus, which, in our experience, is a not infrequent cause of chronic invalidism; as to its prognosis we may quote Pauchet: "*Le volvulus n'est jamais un accident; c'est une échéance.*"

It thus appears advisable to distinguish at least three types of dolichosigmoid: simple dolichosigmoid, which is not an indication for surgery; dolichosigmoid complicated by megasigmoid, for which sympathectomy may be indicated; and dolichosigmoid complicated by mesosigmoiditis or other local cause, producing a recurrent volvulus, for which the treatment is surgical, and in our experience excision of the loop, followed by end-to-end junction, has given the best results.—We are, etc.,

D. LIGAT.
T. D. OVEREND.

St. Leonards-on-Sea, July 26.

When to Operate in Appendicitis

SIR,—Mr. McNeill Love has given us a most clear and concise account of the "expectant" method of treatment of acute appendicitis; he estimates the proportion of cases in which the method has to be abandoned, and the method may be said to have failed, at 10 per cent. I would like to point out another weakness in this method, which concerns those patients in whom the treatment has been successful in the first place but who then fail to return according to plan to have the appendix removed at a later date. Such cases are not uncommon, and the following is an example.

A male, aged 20 years, was admitted to St. James's Hospital on April 27, 1936, with acute appendicitis of sixty hours' duration. An "indefinite swelling" was palpable. Expectant treatment was instituted with the happy result that resolution occurred; the patient left hospital without operation, and was free from symptoms on May 13, 1936. The most emphatic instruction was given that he was to return in three months' time for appendicectomy (as is the routine in such cases). This instruction he ignored, and his next appearance was on September 5, 1936, when he was brought to hospital again, this time with a well-formed appendix abscess. Simple drainage was performed, and the patient left hospital after the wound had healed, again with emphatic instruction about returning for appendicectomy—which he again ignored. On July 19, 1937, the patient returned to hospital with a third appendical attack; a definite mass was palpable on admission, but appendicectomy was performed on July 24, 1937—not without some little difficulty. The patient is now convalescent.

"All's well that ends well" will be the obvious comment for the disciples of Ochsner and Sherren to make; but it seems reasonable to assume that the patient would have been subjected to less risk had an immediate appendicectomy been performed on his first admission to hospital in April, 1936—apart from the fact that he has been an invalid on and off for fifteen months owing to appendix trouble.

Of course if it were possible to kidnap these defaulting patients on the expiry of the appropriate three months the monotonous sequence of events in the present case would have been cut short. But there is, unfortunately for the success of the expectant treatment, no provision for such a contingency. The responsibility for these cases is not discharged until appendicectomy has been performed, and when accidents occur owing to the patient's neglect to return the surgeon is indirectly responsible in that he might have prevented any such possibility by an immediate operation in the first place.

Thus, if expectant treatment is contemplated, it would seem to be necessary (among other things) to estimate what sort of a person the patient is, and whether he is likely to carry out instructions when he leaves hospital. Otherwise the end-result may be that this method of treatment fails, albeit the immediate surgical "expectations" are completely realized.—I am, etc.,

St. James's Hospital, S.W.12, Aug. 1. R. S. LAWSON, M.S.

Chronic Monocytic Leukaemia

SIR,—I have read with interest Dr. J. D. Hay's letter (July 24, p. 184) concerning the size of the spleen in monocytic leukaemia, a point discussed in my article in the *Journal* of July 3 (p. 1). In Osgood's article (*Arch. int. Med.*, 1937, **59**, 931) an analysis is made of all cases reported as monocytic leukaemia, the strength of the evidence for the diagnosis being very variable in different cases. Osgood states that in 84 per cent. of 117 cases the spleen was reported as being enlarged, either "palpable, enlarged to percussion, or of definitely increased weight at necropsy," and the average weight in the few cases in adults in which it was recorded was 473 grammes, which would generally mean palpable enlargement. In view of this it would perhaps be better to say that most cases of monocytic leukaemia are acute, and that there is usually only moderate splenic enlargement. Dr. Hay doubts the wisdom of gauging the chronicity of a case of this description by the degree of splenomegaly. I fully agree that a case may be of some duration without having much splenic enlargement, but the converse, I think, does not hold. As I stated in my article, I consider extreme splenomegaly (in my case the spleen weighed 1,531 grammes) to imply chronicity, and chronicity in monocytic leukaemia is a very rare feature.—I am, etc.,

Manchester, July 26. G. STEWART SMITH.

Hereditary Sebaceous Cysts

SIR,—I think that cases of hereditary sebaceous cysts of the scalp, such as that described in the *Journal* of July 24 (p. 185), are the least uncommon variety of sebocystomatosis (Pringle's steatocystoma multiplex), well illustrated by the condition in two brothers demonstrated by Dr. A. Schlüter and myself at the Dermatological Section of the Royal Society of Medicine (autumn, 1936). In those two brothers most of the surface of the body was affected. The cysts were chiefly small, but there were also larger ones. Those on the fingers were conspicuous; those on the scrotum were typical; and one in the groin was large enough at first sight to resemble an inguinal hernia.

In the *Urologic and Cutaneous Review* for July, 1937, I drew attention to another (? not hereditary) type of sebocystomatosis. The patient was a young woman who had minute cutaneous cysts almost limited to the axillae. Microscopical examination (Dr. W. Freudenthal) showed them to arise from the hair follicles. Their position suggested that they might have been derived from apocrine glands, but on careful examination no dilated apocrine tubercles were found.—I am, etc.,

London, W., July 28. F. PARKES WEBER.

Ionization for Hay Fever

SIR,—In the *Journal* of July 31 (p. 245) Mr. C. A. Hutchinson criticizes me on three points, but to all of them I still adhere. (1) Fibrinous exudate after ionization I have seen, and damage to cilia is the point of the American criticism. But the mucosa recovers. And therefore (2) metaplasia does not usually occur, or at least persist. Only once have I seen a case of hay fever with meta-

plasia and that was one of pronounced atrophic rhinitis. This man has had only one attack, promptly relieved by one ionization. It is conceivable that a mucosa that has had repeated cauterization may show metaplasia, but for my statement that the nose is normal between attacks my critic will find confirmation on page 723 of Coca, Walzer, and Thommen's authoritative book, and they have had vastly more experience of hay fever than I. There is no metaplasia in the nose of the doctor whose case I quoted. On the contrary, he has a slight tendency to polyp formation, and polypi are common material for the demonstration of cilia to students. (3) Mr. Hutchinson says that for paroxysmal rhinorrhoea ionization is palliative, "very rarely curative." Why, then, object to my expression "mostly futile"? I tried to indicate a better, because more permanent, way.—I am, etc.,

Glasgow, July 31. JAMES ADAM.

Agranulocytosis and Para-aminobenzenesulphonamide

SIR,—I have had the opportunity of observing a case similar to the one reported by Dr. C. I. Young (*Journal*, July 17, p. 105).

The patient was a young man aged 20, who was suffering from acute rheumatism with pains in the joints and pyrexia. He could not remember having had any previous attacks. The heart showed clinical signs of old endocardial lesions—aortic regurgitation and mitral stenosis—and there was evidence of a superimposed infective endocarditis—enlarged spleen, clubbed fingers, and pallor. The blood culture was negative and the leucocyte count was 6,100 per c.mm.

The patient was given 90 grains of sodium salicylate daily, but the pyrexia never subsided for any length of time. Sixteen days after admission the leucocyte count was 8,200 per c.mm. Twenty-three days after admission he was put on para-aminobenzenesulphonamide (proseptasine, May and Baker), 3 grammes daily. His condition did not improve, and the drug was discontinued after eighteen days. Again the blood culture was negative. Two days later the patient had only 600 leucocytes per c.mm. (45 per cent. haemoglobin, 2,800,000 erythrocytes per c.mm.), and greyish-white spots appeared in the pharynx. On the same evening 300 leucocytes per c.mm. were present. He received a blood transfusion and pentnucleotide. The next day he died. The leucocyte count before death was 1,000 per c.mm., all the cells being lymphocytes.

Although there is no proof that agranulocytosis was due to para-aminobenzenesulphonamide, this case and Dr. Young's case suggest the advisability of a daily leucocyte count in cases in which this drug is given over long periods. (See also *J. Amer. med. Ass.*, 1927, **89**, 1377.)—I am, etc.,

Leeds, July 23. ALFRED MODEL.

Prominal in Epilepsy

SIR,—I was interested in the articles published in the *Journal* of July 10 by Dr. Guy Millman and Dr. C. J. Henderson on their experiences of the use of prominal in substitution for luminal in the treatment of epilepsy, as I have been using luminal since 1913, and latterly prominal, also in such cases. Both these drugs are superior to the bromides in many cases in reducing the frequency of the fits. They have the further advantage over the bromides in not producing the same dulling effect on the mentality of the individual. But both luminal and prominal are of foreign manufacture and are very expensive preparations.

I wish therefore to draw attention to "phenobarbitone soluble," the "home-made" product, which is obtainable at one-fifth the price and produces equally good results, as I mentioned in my report on the Devon Mental Hospital for 1934. New preparations for the treatment of epilepsy spring up in the market like mushrooms, but we have yet to find *a cure* for this disease.—I am, etc.,

Countess Weir, Nr. Exeter, Aug. 2. RICHARD EAGER.

More Light—Better Sight?

SIR,—That maximum visual acuity does not occur beyond a certain intensity of light has for long been understood by physicists. On July 16, 1857, the late John Tyndall, F.R.S., spent an interesting day on the Mer de Glace making observations on the appearances presented by "dirt-bands." In his book, *The Glaciers of the Alps*, inscribed to Michael Faraday in 1860 he wrote:

"The illumination of the glacier has great influence upon the appearance of the bands; they are best seen in a subdued light, and I think for the following reasons: The dirt-bands are seen simply because they send less light to the eye than the clearer portions of the glacier which lie between them; two surfaces, differently illuminated, are presented to the eye, and it is found that this difference is more observable when the light is that of evening than when it is that of noon."

"It is only within certain limits that the eye is able to perceive differences of intensity in different lights; beyond a certain intensity, if I may use the expression, light ceases to be light and becomes a pain. The naked eye can detect no difference in brightness between the electric light and the limelight, although when we come to strict measurement the former may possess many times the intensity of the latter. It follows from this that we might reduce the ordinary electric light to a fraction of its intensity without any perceptible change of brightness to the naked eye which looks at it. But if we reduce the limelight in the same proportion the effect would be very different. This light lies much nearer to the limit at which the eye can appreciate differences of brightness, and its reduction might bring it quite within this limit and make is sensibly dimmer than before. Hence we see that when two sources of intense light are presented to the eye, by reducing both the lights in the same proportion the *difference* between them may become more perceptible.

"Now the dirt-bands and the spaces between them resemble in some measure the two lights above mentioned. By the full glare of noon both are so strongly illuminated that the difference which the eye perceives is very small; as the evening advances the light of both is lowered in the same proportion, but the differential effect upon the eye is thereby augmented, and the bands are consequently more clearly seen."

—I am, etc.,

Hindhead, July 25. ANDREW FERGUS.

Ocular Headache

SIR,—I am grateful to Mr. L. G. Scoular for raising several critical points in his letter (July 24, p. 186), and for the opportunity to reply to them in extension of my paper on ocular headache.

To me there must exist some doubt concerning the undemonstrable hypothesis that astigmatism and hypermetropia give rise to headaches solely by imposing "some kind of strain on the ciliary muscle." I would like to draw attention to the rarity of complaints of headache of ocular origin in individuals with only one useful eye, even though this may be a hypermetropic one. The squinter who has suspended the use of one eye has solved his muscle-balance problem in his own way, and though

he often needs to make a considerable effort of the ciliary muscle for unaided close work does not seem to be so liable to headaches from this cause. The discomfort occasioned by astigmatic errors "against the rule" or at an oblique angle is due, as I believe, to our adoption of letter forms suited to the physiological majority. Sufferers from discomfort of this nature are likely to associate their headaches with ocular effort and to take direct measures to secure attention to their eyes. They will tell their doctor that their eyes are troubling them and merely seek his help as an intermediary to obtaining specialist advice. The standard of ventilation of public places of entertainment is higher than it was, but cinema eye-ache continues to be more conjunctival than visual, often by atmospheric aggravation of an antecedent conjunctival congestion which may or may not be referable to refractive error. The conditions cited by your correspondent having obvious pointers to the source of the trouble are unlikely to mislead, and are omitted with intent from my paper in order to confine it to acceptable if condensed limits. It is in cases of migraine and in obscurer types of headache generally that the practitioner may find assistance from a simple estimate of the near point eye muscle balance in bringing to order the vague history given by a patient, possibly regarded on other excellent grounds as neurasthenic.

Mr. Scoular, having, like myself, served a brief apprenticeship in general practice, appreciates that the practitioner has neither the time, the inclination, nor the proficiency for accurate retinoscopy (in diminishing order of insuperability). My paper was written and compressed to an economic minimum of these three—and of equipment expense—that any practitioner can achieve, and that will be of practical use to him in a life already fully occupied in the wider aspects of medicine, of which headache in general, and ocular headache in particular, are relatively minor details. If in attempting to cover the matter briefly my remarks appear unduly dogmatic I ask Mr. Scoular to ascribe it to the exigencies of space rather than a failure to keep an open mind.—I am, etc.,

Hull, July 29. STENHOUSE STEWART.

Commerce Without Conscience

SIR—The article on this subject in the issue of July 24 (p. 178) is the best thing I have read for many a day, and is not without a fair amount of subtle humour which makes it all the more enjoyable. Could it not find its way into the public press? For, while the *Journal* can be seen in many public libraries and elsewhere, it is not widely read by the patent medicine consumers.—I am, etc.,

Leven, Fife, July 26. R. B. G.

The British standard specification for centrifuge tubes and sedimentation vessels for the determination of visible dirt in milk, No. 736, which has just been published by the British Standards Institution, has been prepared at the request of and in co-operation with the Dirt in Milk Subcommittee of the Analytical Methods Committee formed by the Society of Public Analysts and other Analytical Chemists. The centrifuge tubes are primarily designed for the determination of visible dirt in milk by the method developed by the above subcommittee and described in its report (*Analyst*, 1937, **62**, 287). It is anticipated, however, that the tubes may be found of use in other operations besides the one for which they are primarily designed. Copies of this British Standard (No. 736–1937) may be obtained from the Publications Department, British Standards Institution, 28, Victoria Street, S.W.1. price 2s. 2d., post free.

Obituary

PROFESSOR F. DE LAPERSONNE

As briefly announced in our last issue France's Grand Old Man in ophthalmology, Professor Félix de Lapersonne, has passed away after a prolonged illness which, though it robbed him of the use of his legs, failed to cloud his indomitable spirit. His personal charm and air of old-fashioned distinction marked him out wherever medical men met, and he carried his many honours with an easy graciousness. Born in 1853 in Toulouse, he was an intern in a Toulouse and later in a Paris hospital. He served under Le Dentu, Péan, and Panas, being the latter's first assistant in the ophthalmological service of the Hôtel-Dieu. In 1886 he moved to Lille, where he became professor of clinical ophthalmology in 1890 and doyen from 1893 to 1901. On the retirement of Professor Panas he succeeded in 1901 to the chair of clinical ophthalmology at the Hôtel-Dieu, and here he remained till 1924. In 1918 he was elected a member of the Academy of Medicine, and he became its president in 1931. As the first President of the International Association for the Prevention of Blindness he proved both an ornamental figurehead and an inspiring organizer in spite of his advanced years. A list of the many ophthalmological subjects on which he published original studies is given in *La Presse Médicale* for July 14. He was, by the way, a very active member of the scientific board of this weekly publication.

By the death of Dr. ALEXANDER MORTON on July 18 at the age of 82 Glasgow loses its oldest and one of its ablest dermatologists. At the University there he took his M.A. degree in 1876, graduated in medicine in 1880, and proceeded to the M.D. in 1885. Although for many years he was a general practitioner he had paid special attention to skin diseases and studied in Dublin and Vienna. He became a member of the Dermatological Society, lecturer on dermatology at St. Mungo's College, and physician for diseases of the skin in Glasgow Royal Infirmary. Dr. Morton had been a member of the British Medical Association for thirty-three years, and when the Association met at Edinburgh in 1898 he acted as a vice-president of the Section of Dermatology. As a consultant he developed an extensive practice, and no doubt he owed much of his success in the treatment of "skins" where others failed to his long experience in general practice, for those practitioners who sent him their patients realized that he was no mere "oleaginous physician," but treated the skin from the inside as well as from the outside. During his later career he was much handicapped by steadily increasing otosclerotic deafness. Nevertheless he was able to handle successfully difficult cases almost up to the time of his death. If genius is the capacity for taking pains Alex. Morton had it, and could make his patients attend to those minutiae essential to success in dermatology. He will be missed by patients and colleagues alike.

J. A.

Dr. CHARLES HENRY BURTON THOMPSON died in Suva, Fiji, on June 22, as the result of a spinal injury incurred by falling from a horse on June 22. He was then in his 57th year. A student of the Middlesex Hospital, he obtained the diplomas M.R.C.S., L.R.C.P. in 1907; he became D.P.H.St. Andrews in 1924, and D.T.M.Liverp. in 1925. His earlier appointments included those of house-surgeon to the Oxford Eye Hospital and ophthalmic and aural surgeon to No. 19 General Military Hospital. He was a member of the British Medical Association. After qualification he practised in India from 1911 to 1914, before which he had been assistant medical officer of

health to the Somerset County Council, and filled appointments at the Moorfields Eye Hospital, the Royal Westminster Ophthalmic Hospital, the Golden Square Ear and Throat Hospital, the Queen Square Hospital, and the West End Hospital for Nervous Diseases. Just before going out to Fiji in 1925 he had been resident medical officer at the Highfield Sanatorium, Liverpool. At Suva he was medical officer of health and school medical officer, and an official member of the Suva Town Board; he was very popular and highly esteemed in Fiji. As port medical officer there he made numerous friends. His funeral on June 23 was attended by a large number of his friends and colleagues, students from the Central Medical School acting as pall-bearers. After the service at the graveside three volleys were fired by a detachment of the Fiji Defence Corps, and the Last Post was sounded. The cathedral service was taken by the Bishop of Polynesia. Dr. Thompson leaves a widow, and a daughter aged 16.

We regret to announce the death on July 21 at Llandrindod Wells, Radnorshire, of Dr. JOHN MURRAY, O.B.E. He was born in Glasgow on February 5, 1871, the son of Alexander Murray, and from Hutcheson's Grammar School went to study medicine at Anderson's College and the University of Glasgow, graduating M.B., C.M. in 1894. Dr. Murray practised for many years at Llandrindod Wells, and was appointed medical officer to the local hospital in 1905; he was also medical officer to the Post Office and certifying factory surgeon. During the war he served as major, R.A.M.C.(T.F.). He joined the British Medical Association in 1907, and had been president of the Shropshire and Mid-Wales Branch.

Medico-Legal

SEPTICAEMIA OR AGRANULOCYTOSIS?

The Manchester city coroner recently heard an inquest on a woman of 59 who died in the Manchester Royal Infirmary. Her husband said that she had taken "yeast-vite" tablets at intervals since 1931. She had been in fairly good health until June 3, but on June 5 she became very ill and the doctor sent her to hospital. She took two tablets after each of her meals on June 3 and 4. She had scratched her finger by some unknown means shortly before her illness. Her general practitioner stated that on June 5 she had a high temperature. He had incised a red swelling on her finger, but she had shown no signs of septicaemia. He had sent her to hospital next day with a diagnosis of some form of blood poisoning. She died on June 14. The city analyst said he had recovered no poison from any organ. The tablets had contained 12.1 per cent. by weight of amidopyrine and 6 per cent. of phenacetin. He thought that death was accelerated by the drug, and said that on certain types of persons it would have a very specific and harmful effect.

The coroner adjourned the inquest for the manufacturers to be represented, and at the adjourned hearing the manager of the local co-operative stores said he had sold "yeast-vite" to the deceased since 1931; he had never received a communication from the manufacturers about the substitution of a new formula or any restrictions on its sale. Counsel for the stores said that a notice calling in all "yeast-vite" stocks was contained in the weekly price list sent out on May 8, 1936. Counsel for the manufacturers, Mr. G. D. Roberts, K.C., said that the tablets had been sold at the rate of 80,000,000 a year for many years and that they had been suspected in only one case, that of a young woman who had died in 1935. Her death had been found due to septic teeth. Since that time, however, amidopyrine had been left out of the tablets. Dr. D. L. Griffiths expressed the opinion that death was due to agranulocytosis caused by amidopyrine and not to septicaemia. There were no micro-organisms in the blood. Sir William Willcox said he had no doubt that death was due to septicaemia caused by the wound in the finger. It was inconceivable that the doses taken on June 3 and 4 could have caused the dramatically acute symptoms. On the question of an idiosyncrasy, he remarked that she had been taking amidopyrine for years, and if she had had an idiosyncrasy it would have manifested itself some time before.

The jury returned an open verdict that death was due to a toxic condition without sufficient evidence to show the type or cause.

Medical Notes in Parliament

In the House of Lords, on July 30, the Royal Assent was given to the Finance Act, the Factories Act, the Local Government Superannuation (Scotland) Act, the Agriculture Act, the Matrimonial Causes Act, the Cinematograph Films Act, the Coal Mines (Employment of Boys) Act, the Local Government Superannuation Act, the Milk (Amendment) Act, the Royal Samaritan Hospital for Women Glasgow Order Confirmation Act, the Ministry of Health Provisional Order Confirmation (South-East Essex Joint Hospital District) Act, and the Liverpool United Hospital Act.

Bills introduced this session but now dropped include the Divorce (Scotland) Bill, Infanticide Bill, Local Authorities (Hours of Employment in Connexion with Hospitals and Institutions) Bill, Protection of Animals Bill, Registration and Regulation of Osteopaths Bill, and the Seafish (Dyeing and Colouring Prohibition) Bill. The Prohibition of Vivisection on Dogs (Scotland) Bill is listed as withdrawn.

Both Houses now stand adjourned till October 21.

Health of Scotland

An estimate was discussed in the House of Commons on July 22 for completing the sum required towards the salaries and expenses of the Department of Health for Scotland, including the grant-in-aid of the Highlands and Islands Medical Service and other services. The debate which followed was chiefly concerned with housing in Scotland. Dr. ELLIOT said the Scottish building industry showed a great output, but it was working under big strain. There was a shortage of men and, to a smaller extent, a shortage of certain materials. The Department was endeavouring to stimulate greater activity following the publication of a Report on Rural Housing, and a circular had been issued to all county councils recommending a more adequate inspection of rural houses and special surveys of the houses for farm servants and crofters.

Mr. FOOT spoke of overcrowding in Dundee, where, he said, there was no prospect of houses under the 1935 Act being available for two or three years for the relief of overcrowding.

Mr. LEONARD asked what was being done to urge local authorities to supply domestic helps, especially in view of the fact that the duties of midwives in the future would differ from what they had been in the past, when midwives were able to give domestic help in addition to their other duties. He also asked the Department to attend to the question of maternity homes. Under the Maternity Homes Act it was possible for a maternity home to have only one qualified person, and that person might be the superintendent herself. The total number of maternity homes registered with Scottish local authorities in February, 1937, was 146, and the nurses employed in the homes numbered 747. The nurses who had neither the Central Midwives Board qualification nor were registered in the general part of the registry of nurses numbered 107. If in some maternity homes there was not a proper proportion of qualified nurses he hoped the Department would take the matter up. Mr. WESTWOOD said the estimates only provided £36,000, as against £70,000 last year, for water supplies in rural areas. This was insufficient. In regard to building, twenty authorities had stopped building because of rising costs.

HIGHLANDS AND ISLANDS MEDICAL SERVICE

Mr. MALCOLM MACMILLAN drew attention to the difficulties in the Highlands and Islands Medical Service of those who had to travel long distances to isolated cases in out-of-the-way places. Lack of transport added to the difficulty of serving people as they should be served. Nothing had been done since Dr. Elliot took office to improve the lot of doctors and nurses in the Western Isles. Often the patient had to be carried from the far end of Harris to Stornaway to get to the only hospitals with proper equipment and accommodation. The telephone service required extension and improvement, and the water supply should be improved, for many places in the Islands depended on shallow supplies which were used by cattle as well as by human beings. There was no communal sanitation in the Western Isles outside Stornaway and perhaps two other towns. Serious consideration should be given to the development of the air service for ambulance purposes. Housing was bad in the Western Isles; there were hundreds of ill-ventilated, dark, and insanitary houses. Fortunately new houses were being built with Government assistance, but the lack of water was felt in these houses also, and they had no internal water supply.

Mr. BUCHANAN said last year 60,000 applications were made in Glasgow for houses, and this year nearly 8,000 more people wanted houses. On June 30, 1936, there were under construction in Glasgow for overcrowding and slum clearance, and for ordinary purposes without State assistance, a total of 2,687 houses. This year at the same period the total was 2,839. There was practically no change. There was an increase in those authorized but not begun. In his own division 1,700 houses were unfit for human habitation.

Mr. GUY doubted whether the total given by Dr. Elliot of 17,000 new houses to be built by Scottish local authorities in 1937 would be completed. In Edinburgh at the present rate of progress thirty to thirty-five years would be required to eliminate the condemned and overcrowded houses.

Replying to the debate Mr. WEDDERBURN said the present rate of slum clearance was satisfactory by comparison with the rate for any year previous to 1933, but unsatisfactory because it did not suffice to remove slums, let alone overcrowding, within a reasonable period of time. In 1933 it was hoped that both in England and in Scotland slums would be removed by the end of 1938. Since then they had removed 43,000 slum houses in Scotland, but the Department of Health estimated that there was probably another 13,000 houses to be removed. Whether this would be done in another five years depended entirely upon additional provisions which the Department had been able to make for increasing the supply of labour.

The proposal to reduce the estimate was defeated.

Milk Regulations

In the House of Commons, on July 23, Mr. W. S. MORRISON moved that the amendments of the Milk Marketing Scheme, 1933, be approved. He said of 44,000 producers who had voted on the draft amendments 87 per cent. were in favour. A public inquiry had subsequently been held and the amendments, with certain modifications, had been assented to by the Milk Board. Amendment 2 gave power to the Board to regulate the manner in which milk might be graded by, or on behalf of, traders and producers. Producers of tuberculin-tested milk were brought into the scheme for the first time to secure that this milk should be marketed through the national organization under conditions which would encourage the continued production of this valuable article.

Mr. A. V. ALEXANDER said regard ought to be had to the difficulties which had arisen in connexion with the cancellation of contracts where producers had been found guilty by the Courts of adulterating milk. He knew of a case in which farmers were found guilty of wilful adulteration, but the buyer was compelled to continue to accept supplies from these farmers. Adulterated or unsatisfactory milk should be regarded as milk not fit for sale, and a producer who had been found guilty of producing unsatisfactory milk should be prevented from selling milk until he provided evidence that it was suitable. He doubted whether producers of graded and tested milk were being called upon to make a sufficient contribution in comparison with other producers who had to contribute to the pool. For some time bodies like the Food Council and the Consumers Committee had made references, not always favourable, to the possibility of having milk delivered without the process services of pasteurization and bottling to be sold at differential prices. The argument was that the price of milk could be reduced if the consumer paid only for the type of service rendered. Behind that lay the more important consideration of public health. In the epidemic last year at Bournemouth over fifty deaths and over 500 cases of typhoid fever were traced to the supply of milk from one producer who sold milk raw. At this moment two municipal corporations, Poole and Glasgow, had Bills before the House with a clause in each taking compulsory pasteurization powers. The Ministry of Health had deferred the matter and was looking into it. The Government had also asked all local authorities who supplied milk to school children that as far as possible they should supply pasteurized milk. Under the amendments the producer-retailer who did not pasteurize would be placed in a favourable position in relation to the majority of the trade who had laid down expensive plants for the pasteurization and bottling of milk in the interests of public health.

Mr. MACQUISTEN said the milk which Mr. Alexander called "raw" was fresh milk and the only milk worth drinking. Pasteurized milk was half-boiled milk. The motive behind the proposal for compulsory pasteurization was to get all the milk into the hands of monopolies. If calves were fed on pasteurized milk they died, and rats who were fed on it failed to reproduce their species. Surely it was better that people should boil their milk when they needed it rather than it should be boiled forty-eight hours before in a factory. If this milk were sold as "half-boiled milk" it would not be so popular. The one bright spot in the Minister's scheme was that it was going to reduce the levy on the tuberculin-tested producer to ½d. per gallon. That would go some distance towards purifying the herd. Why did the doctors not clamour for tuberculin-tested milk instead of bringing all this pressure to bear in favour of pasteurized milk? The result of regulation in Scotland had been that the retail price of milk was now 3s. 4d. a gallon. It was no use talking about nutrition so long as that was the Milk Board's price and so long as a man who sold his milk cheaper was treated like a felon.

Mr. W. S. MORRISON, replying to Mr. Alexander's question on contracts with producers convicted of adulteration, said the crime of adulteration carried its own penalty, and he did not think that cases were sufficiently numerous to warrant any objection to the amendment as proposed. There was often a great deal of doubt whether milk had been adulterated or not. Many producer-retailers did their best, with success, to supply decent milk, and if producers as a whole were willing to carry out their obligations the House could rest assured. The Department was not departing from its endeavour to get the quality of milk supplied by producer-retailers up to a higher standard. There was ample inducement for progress in supplying clean and wholesome milk.

The House then approved the amendments.

Safety in Mines

The House of Commons in Committee on July 26 considered the vote for the salaries and expenses of the Mines Department of the Board of Trade. Captain CROOKSHANK said that questions affecting the health and safety of the 780,000 men employed in the mining industry—silicosis, nystagmus, and so on—must be the constant preoccupation of anyone who held the office of Secretary to the Mines Department. Although in certain directions they could note a reduction, they could not be merely complacent in the matter; they must regard it merely as a starting-point for further efforts in the future. The Royal Commission on Safety and Health had been labouring very strenuously during the last year, and was still sitting. In

1936 790 persons were killed in the collieries, one or two of whom, for some unusual reason, were women. This was the lowest figure on record for a full year's working, and would have been more impressive but for the major disaster last August at Wharncliffe Woodmoor. On the basis of 1,000,000 tons of coal raised the number of killed came out at 3.36, which was the lowest figure on record, or 0.39 per 100,000 man-shifts worked, which was better than anything since 1924. Unfortunately there had been an increase in the number of persons killed in the first six months of this year.

One aspect, however, was a most bitter disappointment to all. In spite of all that had been done by boys' classes, training grounds, safety officers, and propaganda to decrease the accident rate for boys, this had moved upwards in the last year. The number of boys employed had also moved up. Something was still very wrong somewhere. A great deal more supervision was required, and older and more experienced men as well as officials could do much by saying the right word in due season. In the last six months 29,000 boys were employed; twenty-nine were killed, and the number of three-days disablement cases was 5,942. For the previous six months the figures were 30,000 boys employed, twenty-four killed, and 5,487 disabled for three days. The safety classes movement had gone on with great strength, and had been satisfactorily started in every coalfield except South Wales, but recently intensive efforts had been made by local authorities, coal owners, officials, and workers to co-operate and improve the position. The movement deserved far wider support in South Wales, if for no other reason than that the accident rate for boys there was higher than the general average for the country. They had had great support for these safety classes from the Safety First Association, which published a very striking poster that had had a wide distribution.

There had been a tremendous increase in the use of protective equipment. Last year the number of hard hats supplied rose by no fewer than 150,000, and in the Swansea area there was a very noticeable increase in the use of hard hats from 700 at the beginning of the year to 4,425 at the end. There were many pits where the hard hat was universally used, and the effects were now beginning to be seen. The number of injuries which lasted for more than a fortnight were proportionately less than they used to be, and the number of injuries lasting less than a fortnight had gone up. Head injuries, which in 1935 were 6.27 per 100,000 man-shifts worked, dropped last year to 5.56. The difference in the proportion of those injured for less than two weeks was 49 per cent. for 1936, compared with 45 per cent. in 1931, and those injured for over two weeks was 51 per cent., compared with 55 per cent. for 1931.

INCREASE IN THE INJURED

He had presented a report on the inquiry into the explosion at the Wharncliffe Woodmoor Colliery last August, which raised an important problem in connexion with stone dust. In this case it was clear that although stone dusting was, generally speaking, carried on in accordance with the regulations, it was ineffective in the roadways in preventing the spread and development of the initial fire-damp explosion. He had been considering new regulations dealing with stone dust, and these had now been circulated for preliminary consultation with the usual bodies concerned. It had not yet been possible to publish the reports of the district inspectors for 1936, and he was sorry to say that the figures of those injured altogether, 136,000, showed an increase over the previous year of 2,000. That showed, in addition to what he had said about boys, that they could not afford to relax any of the precautions that could be taken. Unfortunately, the inspectors' reports showed many cases where accidents might perhaps have been avoided. He appealed to the makers of all machinery which might be used, either underground or on the surface, to do everything possible to provide the most efficient guards.

As to silicosis he had nothing particular to say at the moment. The Medical Research Council had recently requested the Industrial Pulmonary Diseases Committee to start a comprehensive investigation into silicosis and allied pulmonary diseases in South Wales. That was a step to which he had given his strongest support. The Miners' Welfare Fund had assisted financially, and the South Wales Miners' Federation had promised to give all the co-operation that it could. The inspectors would continue to give all the assistance in their power, and Captain Hay, one of the inspectors, had been specially detailed for this work, and spent the whole of his time co-operating with mine and quarry managements in trying to devise the best means of prevention. Under the Factories Bill quarries and pit banks of metalliferous mines would be left out of the Factories Act administration, and would come under the Mines and Quarries Acts administration. For that purpose they would be transferred from the Home Office to the Mines Department. Consequently it was necessary to draw up new regulations to deal with this problem, and that was now being done.

Mr. J. GRIFFITHS: The Minister said that the Medical Research Council by arrangement with the industry was to investigate the purely medical side of the problem. It will spend most of its time investigating the question of what are the precise diseases from which the men who are disabled are suffering, and which are declared to be other than silicosis. Will anything be done at the same time or afterwards to investigate thoroughly the problem of how the disease can be prevented?

Captain CROOKSHANK: Generally speaking, one needs to know what a thing is before one can prevent it. Captain Hay, as I have said, spends the whole of his time trying to devise methods of prevention.

Mr. PALING moved to reduce the vote. He said that in view of the boasted progress in the science of mining it seemed incredible that the accident rate in mines could not be reduced. The figures meant that on an average every man working underground met with an accident once every five years. The number killed approximated to nearly 1,000 each year.

Captain CROOKSHANK, replying to points raised in the debate, said that with regard to accidents to boys in 1936 in the group 14 to 16 there were twenty-nine killed and 5,932 injured, and in the group 16 and under 18 there were twenty-six killed and 8,347 injured.

The motion to reduce the vote was negatived, and the vote agreed to.

Research into Animal Diseases

During the debate in the House of Lords on July 26 on the report stage of the Agriculture Bill Lord Arnold asked for an assurance from the Government that financial assistance for research into animal diseases was practicable under the Bill. He said it was a vital part of the attack on disease that the Council for Scientific Research into Animal Diseases should be very generously assisted.

The EARL OF FEVERSHAM said that Clause 20 of the Bill enabled the department to make grants to the Agricultural Research Council. The money provided by the clause was merely limited by the vote of Parliament.

The Bill was read a third time on July 28.

Milk Pasteurization

In the House of Commons, on July 27, Mr. MARQUISEN asked leave to introduce a Bill to prohibit the use of the designation "pasteurized" in connexion with the sale of milk, to enforce the use of truly descriptive designations in connexion with the sale of any milk heated above a certain temperature, and to amend the Milk and Dairies (Amendment) Act, 1922. He said he hoped that the Bill would be accepted and that no longer would the misleading word "pasteurized" be used in regard to milk. He did not believe that pasteurization made milk any more sanitary, because it was much more liable to infection afterwards. Pasteurized milk was only half-boiled milk cooled down, and it would be better for everybody if it was accurately described. Great pressure was being put on the Ministry of Health to make pasteurization compulsory. The great monopolies hoped that

if that were done all the milk would be driven through their hands. Fresh milk was the only milk worth drinking. He did not believe in an inquiry by the Ministry of Health. If half-boiled milk was good, why did the medical profession not spread among their patients the idea of boiling their own milk instead of leaving it to go through the dairies, where it was liable to pick up infection after it was pasteurized? Possibly there were some medical officers of health who were in favour of compulsory pasteurization. He always looked upon these officers as men who did not want to go out into the open and fight for a living, but wanted jobs with a pension attached. The Minister of Health was the person who had tolerated kippers dipped in creosote for so many years. He did not want these monstrosities forced upon the community for the benefit of commercial interests. There should be a truthful description of milk so that the public would know what they were getting.

Mr. LEONARD opposed the Bill on the grounds of public health. He said he was surprised that Mr. Macquisten should make this attack upon the health machinery of the country, which had been built up with so much trouble to bring it to its present standard. Pasteurization was well understood; it was not boiled milk. Some people thought that it led to dirty milk, or induced farmers to be lax in their methods of milk production, but that was not the case.

Leave to bring in the Bill was refused.

On July 27 Sir THOMAS MOORE asked the Secretary of State for Scotland whether his attention had been called to the report issued by the milk production department of the West of Scotland Agricultural College with regard to the deleterious effect of pasteurizing milk, and what proportion of the milk used in connexion with the milk-in-schools scheme under his Department was pasteurized and fresh respectively. Dr. ELLIOT said he had seen the report in question, which related to an experiment into the relative value of raw and pasteurized milk in calf feeding. The results of any single experiment had to be taken in conjunction with a great number of other experiments on this subject, which had been and were being made. Fifty-three per cent. of the milk used in connexion with the milk-in-schools scheme in Scotland was pasteurized and 47 per cent. untreated. A large proportion of the milk in both categories was tuberculin tested.

Silicosis

On July 27 Mr. GORDON MACDONALD asked the Home Secretary the number of patients alleged to be suffering from silicosis that had been submitted to the medical board during each of the last five years and the number certified as suffering from the disease.

Mr. LLOYD circulated the following statement:

Examinations by the Medical Board in Pursuance of Applications for Death and Disablement Certificates from Silicosis or Silicosis Accompanied by Tuberculosis

Year	Disablement		Death	
	Workmen examined	Certified to be wholly or partially disabled by the disease	Applications dealt with	Certified to be caused by the disease
1936	1,001	499	281	197
1935	827	435	226	174
1934	680	410	201	147
1933	650	429	191	149
1932	570	382	175	139
Total ..	3,728	2,155	1,074	806

Air Raid Precautions

During consideration on the report stage of the salary of the Minister for the Co-ordination of Defence in the House of Commons on July 27 Sir THOMAS INSKIP said that a great deal of work had been done concerning air raid precautions, and the fact that discussions had taken place with local authorities about the financial responsibility indicated that the plans had reached an advanced stage. The whole country had been surveyed and divided into zones, in some of which preparations must be on a more elaborate scale than others, according to proximity to any menace. When the discussions on finance had ended in a proper settlement these plans could be effectively executed. He saw no reason why they should not now begin at once to carry out the plans so carefully and elaborately made. Sir Thomas subsequently announced that the Calcium Carbide Committee had been asked to present a report not later than the middle of September, so that the Government should be able to prepare any requisite legislation.

Factories Bill

The Lords' amendments to the Factories Bill were considered by the House of Commons on July 27. On the new clause proposing to allow the periods of employment for persons under 16 to end later than 6 p.m. but not later than 7 provided the total hours worked did not exceed 44 in any week, and where on at least one weekday in addition to Saturday these persons were not employed either before or after the midday meal, Mr. GEOFFREY LLOYD proposed that the Commons agree with the Lords in this amendment. Subsequent speeches, however, were critical, and when the debate was resumed on July 28 he announced that the Home Office did not propose to press the new clause, which was, in consequence, negatived. The other amendments made by the House of Lords were accepted and the Bill was returned to the Upper House.

Cost of Living and Nutrition

On the Consolidated Fund (Appropriation) Bill in the House of Commons on July 28 Mr. DAVID GRENFELL opened a debate on the cost of living. He said that the cost of living scales vaguely reflected the conditions of life of a very large number of people. He understood there was in progress a survey of the effectiveness of this instrument for gauging the purchasing power and social conditions of the community. The scale had moved upwards in the last four years at a more or less steady pace.

Mr. GRAHAM-WHITE said 4,500,000 people in this country spent on an average only 4s. a week on food; another five millions spent only 6s.; another nine million spent only 8s., although the Nutrition Committee of the British Medical Association had fixed 7s. a week as the minimum required for a reasonable physical existence. Havoc would be wrought in a multitude of homes if the cost of living continued to rise. The basis of the cost of living index should have the complete confidence of the people, because in the heavy industries the remuneration of at least one million people fluctuated with it, and in important sections of the Civil Service salaries varied with variations in the cost of living. Was the House and the country to have any information on this important matter before about this time next year? A significant fact with regard to the cost of living was that there had been no seasonal decline this year, and he presumed there would be a much steeper rise before Christmas than occurred last year. If the rise went on it might well lead to an increase in the mortality rates, which varied according to the standards of living and nutrition.

VARYING STANDARDS OF LIVING

Sir ARNOLD WILSON said that when the nation was short of food in 1914–18 there was an actual diminution of mortality, and at present in Germany, which unquestionably had no surplus of food, the expectation of life at any age above 5 was four years in excess of the corresponding expectation in this country. In the United Kingdom wage rates were slightly higher than in 1929 and the cost of living was slightly lower, but as a result of abnormally low prices of food during the past five years persons on the lowest wage levels had become accustomed to spending rather less on food and rather more

on the minor comforts of life. The quantity of meat eaten was going up rather rapidly in spite of higher prices, as also that of butter, margarine, cheese, milk, beef, and bread, although 10 per cent. less bread was consumed than was the case ten years ago. There was an increase in the total consumption of food, and there were on the average fewer dependents in a family than in 1929. There was more money to spend in any given family than there was in 1929. The true standard of living in this country might not have risen, but the standard had become more costly. There had been a 20 per cent. increase in the last six years in the consumption of tobacco, cosmetics, and sweetmeats, and in visits to cinemas, and also an increase of something like 10 per cent. in the consumption of liquor. The total sum expended on such luxuries or near luxuries was something like £250 million to £300 million a year. Perhaps it was due to the pressure of advertisements that the nation consumed less of some essential commodities like fish and bread, and vastly more of quasi-luxury commodities like tobacco. The cost of living ought to be divided into separate categories, comprising first, elementary needs; secondly, conventional needs; and thirdly, luxuries which could be dispensed with. Now that prices were rising it should be considered whether the cost of dying ought not to be included in the cost of living. Burial costs were roughly £10 million per annum in this country, and of this seven to eight millions fell on the wage-earning classes.

Mr. OLIVER STANLEY said it was difficult to reply to the many points raised in the debate. The index for the cost of food was above what it was twelve months ago, and still more above the year 1933, but below what it was in July, 1930, and considerably below what it was in 1929. In so far as the rise in the cost of foodstuffs was a world trend produced by greater demand was it in fact something which in general was injurious to the health of this country? A rise in commodity prices which took people off unemployment assistance and gave them increased purchasing power more than made up the difference in prices to them. If the health of the country depended on food prices falling as low as possible, then the years 1930 to 1933 ought to have been years in which this country had much greater prosperity than was in fact the case.

Miss LLOYD GEORGE said Sir John Orr had reported that practically half the population of this country suffered from undernourishment. He said that a year ago, since when the cost of food had risen, and the serious factor was that it was the nutritive foods, with the exception of milk, which had increased in price. The price of food had risen by 10 per cent.

UNEMPLOYMENT ASSISTANCE

Mr. JAMES GRIFFITHS said that the scales of allowances fixed in reference to the needs of applicants under the Unemployment Assistance Board were decided in July, 1936, as meeting the needs of unemployed persons at that date, when the cost of living index figure was 46. What should the scales be in July, 1937, when the figure was 55? The Government should see that the allowances were increased proportionately.

Mr. SHINWELL said 214,000 old age pensioners were in receipt of public assistance, and persons in receipt of outdoor relief in 1936 in England and Wales numbered 1,200,000. What kind of life must it be for these persons. The British Medical Association laid down a minimum of 5s. 7½d. as the lowest possible standard on which a person could live for a week.

Colonel COLVILLE said an inquiry into working-class expenditure would be undertaken in the autumn with a view to revision of the cost of living index. Full consideration would be given to all the points which had been raised in the debate. The inquiries would be conducted with the assistance of local committees set up for the purpose and households from which information was desired would be visited personally. There would be no time lost, but a reliable picture on which to base future calculations could not be secured if they hurried too much. Meanwhile the present cost of living index figure gave a good picture on which to proceed. To link old age and widows' pensions with the cost of living would be very unfortunate for the pensioners. If that had been done in 1919 the pension to-day would be 6s. 9d. The Appropriation Bill was then read a second time.

Health in Barbados

A statement made on behalf of the Colonial Office, on July 28, by Sir LAMBERT WARD announced that a Committee on Problems of Nutrition, appointed by the Governor of Barbados, had recently reported, and as a result of its recommendations proposals for the establishment of infant welfare clinics and crèches in all the parishes, on lines similar to those at present existing in two of them, were under discussion. Arrangements for the establishment of a system of daily distribution of milk and biscuits to elementary school children were also under consideration by the Barbados Education Board. An important source of ill-health in the Colony was overcrowding and bad housing, and an attempt had been made to remedy this by the establishment of a housing board, which was empowered to order the alteration, repair, or demolition of houses which were injurious to health or unfit for human habitation, and to acquire land and build suitable houses.

Tuberculosis in Scotland

On July 29 Dr. ELLIOT circulated a table relating to the incidence and fatality of tuberculosis in Scotland as follows:

Year	Incidence.			Fatality.					
	Number of Notifications			Number of Deaths			Death Rates per 100,000 Population		
	P.	N.P.	All Forms	P.	N.P.	All Forms	P.	N.P.	All Forms
1934 ..	4,985	3,066	8,051	2,793	911	3,704	57	18	75
1935 ..	4,939	2,951	7,890	2,811	836	3,647	57	17	74
1936 ..	4,736	3,019	7,755	2,753	911	3,664	55	18	73

P. = Pulmonary. N.P. = Non-pulmonary.

Post Office Administration

In the House of Commons on July 29, on the third reading of the Appropriation Bill, Mr. VIANT opened a debate on Post Office administration. He condemned the amount of overtime worked in the Post Office, and said it was general throughout all departments. The health statistics spoke for themselves, as showing the number of days lost through sickness aggravated by overtime.

Major TRYON said while he agreed on the importance of reducing overtime, there did not seem to be a good foundation for suggesting that overtime had led to sickness in the Post Office, in view of the fact that sickness had not been so low for a long time. In 1936 the rate of sickness among men was the lowest since 1914, and that of sickness among women was the lowest since 1906.

Sir WALTER WOMERSLEY said in reviewing because of health reasons the question of bringing the temporary postmen on to the permanent staff the Department was bound to take into consideration the conditions of the service. No service in this country was more generous in treatment of men who were ill. Full wages were paid, medical attention was given, and only when it was beyond doubt that the person was unlikely to render useful service to the Department did the question of superannuating him out of the service arise. When a person went into temporary service it was pointed out to him that there was no obligation on the part of the Postmaster-General to find him permanent employment. After further discussion the Appropriation Bill was read a third time.

Liverpool United Hospital Bill

The Committee on Private Bills, which examined the Liverpool United Hospital Bill, reported that the object of the Bill was to amalgamate the Liverpool Royal Infirmary, the David Lewis Northern Hospital at Liverpool, the Royal Southern Hospital at Liverpool, and the Liverpool Stanley Hospital in one corporation to be called the Liverpool United Hospital, and to make provision with respect to the property and funds of the said hospitals and the management of the amalgamated

hospitals. A report from the Attorney-General relative to the Bill was referred to the committee, who found that except as regards Clause 40 of the Scheme scheduled in the Bill, the recommendations contained in the report had been complied with by amendments made in the Bill during its passage through the House of Lords. With regard to Clause 40, the committee found that the Bill had been amended in the House of Lords to provide (*a*) that an investment committee should be appointed consisting of the chairman, the deputy chairman, the treasurer, and not more than three members of the general committee of the hospital; (*b*) that the investments of trust monies of the hospital should be subject to the approval of the investment committee; (*c*) that a list of the investments should be available for inspection by any governor; and (*d*) that the powers of investment to be authorized by the Act should not apply to funds on the investment of which there were any existing restrictions.

Working Hours of Nurses.—Sir FRANK SANDERSON asked on July 22 whether the Minister of Health would consider introducing legislation making it compulsory upon all hospital authorities to introduce an eight-hour day for their nursing staff, in view of the great strain imposed upon them by the existing eleven-hour day, and the consequent detrimental effect upon the health of the patients. Sir KINGSLEY WOOD answered that the question of the working hours of hospital nurses was one of a number of matters affecting the nursing profession which engaged his attention. The associations representing local authorities were in communication with the General Nursing Council regarding certain measures for meeting the situation.

Anti-dysentery Treatment.—Mr. GROVES asked on July 23 if Bristol public assistance committee had purchased a large quantity of anti-dysentery bilivaccine in order to make an extensive trial of it on patients at the Stapleton institution; by what method the vaccine was administered; and what need there was for it at that particular institution. Sir KINGSLEY WOOD replied that he was in communication with Bristol City Council on this matter.

Civilian Practitioners and Emergency Service in Military Hospitals.—On July 27 Mr. HORE-BELISHA, replying to a question, said that lists of medical practitioners willing to serve in a civil capacity at military hospitals in the United Kingdom in place of the Royal Army Medical Corps until such time as they were relieved by the R.A.M.C. officers were kept in each Command.

Slums in Glasgow.—On July 27 Dr. ELLIOT, replying to Mr. Stephen, said that 622 houses in the Camlachie Parliamentary Division of Glasgow were being dealt with under the Housing Acts as unfit for human habitation, or were on the corporation's list awaiting such action. The numbers of unfit houses closed or demolished during 1935, 1936, and the first half of 1937 were 167, 153, and 28 respectively. The latest available information with regard to the number of overcrowded houses in the division was obtained as a result of the overcrowding survey at the end of 1935, when the number was 5,660. The number of houses built by the Glasgow Corporation in the division in each of the six years 1931 to 1936 was: 1931, 294; 1932, 108; 1933 and 1934, none; 1935, 54; and 1936, none. The corporation had thirty houses in course of erection in the division, and proposals under consideration for the building of approximately 770.

Regional Supply Depot for Respirators.—Mr. LLOYD, replying to Mr. Kirby on July 27, said that a large regional supply depot for gas respirators had been established in Liverpool. It came into occupation on July 19, and was now ready for the reception of the respirators.

Nutrition and Unemployment Assistance.—On July 27 Mr. T. SMITH asked the Minister of Health whether the committee of inquiry into the question of nutrition had had under consideration the scales of unemployment assistance; and, if so, whether they were considered adequate, especially in view of the increase in the cost of foodstuffs. Mr. BERNAYS said that the Advisory Committee on Nutrition was dealing with the general question of the diet of the people, and dietary surveys were at present being undertaken in certain areas which dealt with working-class families, and which might include persons in receipt of public assistance.

Funds and Expenditure of Approved Societies.—On July 27 Sir KINGSLEY WOOD informed Mr. Gibson that 849 approved societies were carrying on business in the United Kingdom under the National Health Insurance Acts on December 31, 1936. Information was not available as to the total amount of insurance funds held by approved societies at the end of their last financial year, but the report by the Government Actuary on the Fourth Valuation of Approved Societies (Cmd. 5496) showed that the total of such funds at that valuation amounted to £164,363,000. The total amount expended by approved societies on sickness and disablement benefit in 1936 was approximately £17,612,000.

Provision of Meals at Instruction Centres.—On July 27 Mr. ERNEST BROWN informed Mr. G. Hall that he had decided to adopt the recommendations of the National Advisory Council for Juvenile Employment for England and Wales on the provision of meals for juveniles in attendance at juvenile instruction centres. He proposed to take the necessary steps to give legislative effect to them at the earliest opportunity.

Medical Examination in Drunkenness Charges.—Sir JOHN MELLOR, on July 29, asked the Home Secretary to take steps to secure that any person detained in custody upon the charge of driving a motor vehicle while under the influence of drink should, as soon as the police surgeon was sent for, be informed of his right to request the attendance of a doctor of his own selection. Sir SAMUEL HOARE said the practice of the Metropolitan Police was to inform any person in custody on this charge that it was open to him to have a doctor of his own choice called on the understanding that he would pay the doctor's fee. The general practice in other police forces was similar. He would look into the matter further if there was any reason to think that this procedure was not followed. He could not say whether the privilege of requesting a doctor of his own choice extended to prisoners other than motoring offenders.

Milk Consumption in Special Areas.—In an answer to Miss Irene Ward, on July 29, Mr. W. S. MORRISON said schemes for the supply of milk at cheap rates to expectant and nursing mothers and children under 5 years were now in operation in the Rhondda Valley, Jarrow, and Walker-on-Tyne. On July 17 in the Rhondda the numbers participating were 860 expectant mothers, 519 nursing mothers, and 5,389 children under 5. In Jarrow these figures were respectively 135, 83, and 1,281; in Walker-on-Tyne they were 107, 214, and 1,401. The average daily consumption under the scheme during July in Rhondda was 4,923 pints, in Jarrow 1,095 pints, and in Walker-on-Tyne 1,289 pints. The milk was sold at 1s. 4d. a gallon compared with the normal price of 2s. or 2s. 4d. a gallon.

Mental Health in the Fitness Campaign.—Sir FRANCIS FREMANTLE, on July 29, asked whether the Minister of Health, having regard to the vital importance of mental health to the community and the growing public interest and need of enlightenment in the subject, would have it included in the health campaign propaganda to be carried out in the autumn under the auspices of the Government. Sir KINGSLEY WOOD replied that opportunities would certainly be taken in the course of the campaign to call attention to the importance of mental as well as bodily health.

Operation of Midwives Act in Wales.—Mr. JAMES GRIFFITHS asked, on July 29, whether the responsible authorities in Wales had submitted satisfactory proposals for the provision of an adequate service under the provisions of the Midwives Act, 1936. Sir KINGSLEY answered that all the local supervising authorities in Wales except one had submitted proposals which were generally satisfactory, although in some instances points of detail were still under consideration. The authority which had not yet submitted proposals

that could be regarded as satisfactory was considering the submission of revised proposals. He was satisfied an adequate service could be established in Wales within the financial and other provisions of the Act.

Hearing Aids: Advertisements in Stamp Books.—On July 29 Sir ARNOLD WILSON asked the Postmaster-General whether, in view of the recent discussions of the British Medical Association at Belfast and of the recommendations of the Select Committee on Patent Medicines in 1914, he would give further consideration to the expediency of excluding advertisements of aids to hearing from postage-stamp books sold by his Department, and what, if any, financial loss would be occasioned thereby. Sir WALTER WONERSLEY, in reply, said Major Tryon had referred to reports of the recent discussions of the British Medical Association on this matter and could find in them no reason for modifying the present policy of the Post Office, which was confirmed a few months ago after careful consideration. The financial loss from the exclusion of advertisements of aids to hearing would be upwards of £3,000 a year.

Tuberculosis in Wales.—Sir KINGSLEY WOOD told Mr. James Griffiths, on July 29, that he was not in a position to make a statement on the result of his consultations with the Welsh National Memorial Association in reference to the steps to be taken to deal more effectively with the problem of tuberculosis in Wales. He was at all times in close touch with the work of the association, and a survey of the services it provided was being carried out by a medical officer of the Welsh Board of Health. He awaited the report on that survey, and hoped to meet representatives of the association and of the local authorities when he visited South Wales in the autumn.

Silicosis and Asbestosis.—Sir SAMUEL HOARE told Mr. Kelly, on July 30, that cases of silicosis and asbestosis were not reportable to the Home Office as and when they occurred, but according to the annual return from the Medical Board for 1936 they certified 551 cases in that year, and in addition certified 198 deaths to have been caused by one or other of these diseases.

Machine Drilling and Silicosis.—Mr. D. GRENFELL asked the Secretary for Mines whether he would authorize the collection of the fullest possible information at mines where more than three cases of silicosis had been certified, showing the names and addresses of men who, in the last twenty years, had been engaged in boring with the use of machines either in hard headings or in ripping, with the type of machines used, and the yardage of hard headings driven. Captain CROOKSHANK replied that he was in full sympathy with the general object in view, but he did not think an investigation on the lines proposed could prove sufficient or satisfactory. There were cases of silicosis among coal miners who had never used machine drills. Moreover, the nature and extent of disability in a particular case could not be reliably determined without medical examination.

Notes in Brief

In the past twelve months 74,631 houses were inspected in Liverpool, 3,380 being found to be unfit for human habitation and a further 29,800 not to be in all respects reasonably fit.

During 1936 there were ten fatal and 2,776 non-fatal accidents to boys under 18 in South Wales and Monmouthshire. The corresponding figure for fatal accidents in the first half of 1937 was five.

Of 100,000 road accidents involving personal injury between April and September, 1936, the reporting authorities attributed to drivers, cyclists, or pedestrians under the influence of drink or drugs as the sole or main cause 14 fatal and 538 non-fatal accidents and, as a contributory cause, 10 fatal and 61 non-fatal accidents.

Some action with regard to immunization against diphtheria is taken by the councils of approximately seventy-four county boroughs, 117 non-county boroughs, twenty-eight metropolitan boroughs, and five counties in England and Wales.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on August 1 the following medical degrees were conferred:

B.M.—M. H. Hughes, A. R. Norton, T. B. Snell, D. I. Crowther, R. H. S. Thompson, W. B. Young.

UNIVERSITY OF CAMBRIDGE

D. J. Bauer of Trinity College has been elected to the Michael Foster Studentship in Physiology.

The following candidates have been approved at the examinations indicated.

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—*Part I:* E. H. Allen, Margaret McL. M. Morrison, J. K. Muir, V. G. Vohra. *Part II:* A. P. Booth, Jean Bouchard, J. A. Brocklebank, C. J. C. Cooke, M. W. Dahab, G. G. Doel, A. M. Evans, W. Irwin, M. Lederman, C. T. MacCarthy, J. R. M. Martin, V. Prakash, H. Pringle, R. R. Rishi, D. C. Virmani, V. G. Vohra, J. W. Winchester.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

M.D.—*Branch I (Medicine):* E. G. H. Cowen, Constance E. Field, G. W. Hayward, A. G. Hounslow, *A. Nelson-Jones. *Branch II (Pathology):* J. L. Hamilton-Paterson, *H. A. Magnus. *Branch IV (Midwifery and Diseases of Women):* V. H. J. Davies, R. Evans, *J. Howkins, M.S., S. P. Mason.

* University Medal.

The Senate on July 21 awarded the Ph.D. in Medical and Vital Statistics (non-clinical) to William John Martin (London School of Hygiene and Tropical Medicine); and the Ph.D. in Medicine (non-clinical) to John Douglas Robertson (Middlesex Hospital Medical School).

UNIVERSITY OF MANCHESTER

The following appointments have been made:

Assistant Lecturer in Anatomy: E. L. Patterson, M.B., Ch.B. *Assistant Lecturer in Applied Physiology:* Margaret I. Williams, M.B., Ch.B. *Demonstrators in Anatomy:* D. D. Cranna, M.B., Ch.B., D. A. Richmond, M.B., Ch.B., and F. W. Smith, M.B., Ch.B. *Clinical Lecturer in Infectious Diseases:* John Yule, M.D., D.P.H.

The Pilkington Fellowship in Cancer Research has been awarded to Mrs. Edith Paterson, M.B., Ch.B.Ed.

QUEEN'S UNIVERSITY, BELFAST

At a meeting of the Senate held on July 27, Mr. J. R. Wheeler, F.R.C.S., was appointed Lecturer in Ophthalmology, and Mr. C. H. G. Macafee, F.R.C.S., and Mr. H. I. McClure, F.R.C.S., Lecturers in Midwifery and Gynaecology.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary meeting of the Council of the Royal College of Surgeons of England was held on July 29, with the President, Sir Cuthbert Wallace, Bt., in the chair.

The Hallett Prize was presented to Alexander James Innes. Dr. W. d'A. Maycock was reappointed a Leverhulme Scholar from August 11, 1937, to September 30, 1938, and Mr. T. Stewart Heslop was reappointed a Leverhulme Scholar for a year from October 1, 1937.

Diplomas

Diplomas of Membership were granted to the following candidates, who have passed the final examination in pathology, medicine, surgery, and midwifery of the Conjoint Examining Board in England:

B. S. S. Acharya, Iris A. Acton, O B. Alakija, A. L. Alban, H. R. Alban, M. Albert, Mary J. Allardice, E. L. Allen, Sheila M. Anderson, C. E. Aston, E. A. Atkinson, J. C. Babbage, F. B. Bagshaw, J. K. Baker, Mary Baker, T. E. Barlow, V. N. le P. T. Barlow, Mary E. Barnard, Alice J. M. T. Barnes, Laura M. Bates, Eileen M. Bateson, G. K. Beatty, G. H. H. Benham, B. D. Berger, R. D. D. Birdwood, A. B. Birt, H. J. Bliss, L. B. Blomfield, R. Bloom, T. K. Bradford, Katharine M. H. Branson, J. K. Bremer, H. A. Brook, G. R. H. Brown, D. W. Browne, J. C. McC. Browne, Marjorie G. Bryan, C. T. A. Burgess, N. J. Burnand, J. H. Burniston, H. S. Bury, L. H. Cane, D. W. J. Cohen, L. Cohen, A. L. Collins, J. Colover, J. Comyn, Margaret M. I. Conway, F. S. Cosh, W. W. Cowen, D. I. Crowther, A. C. Cunliffe,

A. G. Dabbs, A. David, J. B. David, T. I. David, Ll. P. Davies, H. J. Ll. Dickinson, I. Donald, P. W. Edmondson, G. F. Edwards, Phyllis M. Edwards, R. W. Ellis, R. E. Emmott, D. T. H. Evans, E. M. Evans, T. J. Fairbank, Ivy F. Fallon, E. L. Fawssett, W. H. V. D. Ferdinands, A. R. Ford, R. G. D. Forward, Margaret B. Fox, D. L. V. Fraser, Constance M. Fraser, W. K. S. Friedburg, E. Gartside, C. H. George, Rachel Goldenberg, J. Graham, M. P. Graham, W. R. Grant, W. P. Greening, L. Griffiths, T. E. Griffiths, O. Gunnery, H. L. T. J. Hardwick, W. Harris, R. J. Harrison, C. C. Harvey, S. Hazra, S. R. T. Headley, R. P. Hendry, L. H. Henein, F. G. Hibbert, H. G. W. Hoare, A. Homayoun, J. H. S. Hopkins, W. M. L. Horner, T. P. Howkins, E. B. C. Hughes, K. Inamulla, G. S. Irvine, R. C. Jackson, I. Jacobson, S. H. Janikoun, C. T. Jones, T. S. Jones, J. Jordan, G. J. G. King, G. M. Komrower, M. Krone, R. E. Lauder, A. D. Le Vay, C. Levy, Armorel J. Lewis, A. W. Lipmann-Kessel, O. P. Llewellyn, W. A. Lombard, G. Lorriman, P. D. Lynch, L. McAskie, D. H. Mackay, K. R. Mackenzie, R. R. McSwiney, S. A. Maddocks, E. B. Martin, T. K. Maurice, B. N. Mazumdar, P. S. Meyrick, J. R. Miles, A. Miller, C. N. Mills, B. D. Molesworth, E. H. Moore, C. A. Moynihan, Perin K. Mullaferoze, Mary G. Murphy, R. B. Niven, J. H. F. Norbury, J. R. Odell, A. K. Pardhy, W. B. Parker, T. Partington, G. R. Peberdy, G. G. Phipps, T. D. Pilcher, J. C. Prestwich, D. G. Price, G. Quayle, E. P. Quibell, Lilian M. N. Raftery, B. K. Rank, H. M. Rapport, D. C. S. Rendall, S. R. Reynolds, W. N. Riley, C. G. Rob, I. F. Rose, D. Rubin, W. R. Russell, C. P. Sames, H. S. Samuel, S. Samuels, P. J. Schultze, K. B. Scott, C. E. Shafto, R. Shaw, K. M. M. Sheldon, J. Skirrow, A. F. Smith, I. Smith, R. M. Solomon, H. Spencer, J. H. Sproule, R. H. Spurrier, C. M. Squire, Margaret G. S. Stalker, Shelagh M. Streatfeild, A. S. Syed, K. G. Symonds, J. E. Talbot, N. G. G. Talbot, J. H. Taylor, R. W. Thomason, W. G. Tillmann, C. R. Tilly, J. A. F. Tobin, Dorothy C. R. Vethavanam, D. M. Wallace, F. Walt, W. B. Waterfall, J. Watkins-Pitchford, C. Weston, A. B. White, G. D. Wild, P. B. S. Willan, C. B. I. Willey, G. P. Williams, J. M. G. Wilson, W. Windsor, P. N. Witney, G. H. Wooler, Ruth F. Wordsworth.

Diplomas were granted jointly with the Royal College of Physicians of London as follows:

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—P. D. Bhargava, A. Caralasingham, S. N. Chelliah, N. Constantoulis, J. De, E. Ll. W. De Silva, S. B. Dhru, A. A. El Moslimani, Annie Foner, M. V. Hargett, E. H. Hudson, P. W. Hutton, X. Khokhongkha, Look-Nyuan Liang, G. D. McLean, E. C. Savona, M. Seraj-ul-Haque, S. B. S. Smith, J. N. Strauss, J. R. de V. Toussaint, J. White.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—S. M. Ali, T. M. J. Armstrong, H. J. A. Barnard, D. L. Charters, H. R. Cursetji, D. S. Flynn, P. R. Greeves, A. C. L. Houlton, D. Hugo, M. T. Ismail, H. Jamieson, J. R. Kellett, M. A. M. Labib, Josephine M. MacFarlane, T. L. McLarty, V. B. Mankad, I. V. Oza, C. R. Palfreyman, Y. C. Pandit, M. J. Philip, E. V. W. Pockley, P. Ramchander, F. J. Rutter, M. K. Sathe, F. G. Scoles, E. S. Shalom, C. A. Stanley.

DIPLOMA IN MEDICAL RADIOLOGY.—J. A. G. F. Rose, J. E. Swyer.

DIPLOMA IN ANAESTHETICS.—G. E. P. Meldon, H. D. Merrington.

The following hospitals were recognized under the F.R.C.S. regulations: Derbyshire Royal Infirmary, Grimsby and District Hospital, Warneford, Leamington, and South Warwickshire Hospital, Miller Hospital, Greenwich, Woolwich War Memorial Hospital, Northampton General Hospital, Cornelia and East Dorset Hospital.

Sir Holburt Waring was appointed representative of the College on the Newcastle Council of the University of Durham for three years.

The annual meeting of the Association of Surgeons will be held at the College on May 5, 6, and 7, 1938.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At a meeting of the Royal College of Physicians of London held on July 29, with the President, Lord Dawson of Penn, in the chair, the following were elected officers for the ensuing year: *Censors,* Gordon M. Holmes, F.R.S., Sir Maurice Cassidy, Albert Ramsbottom, G. E. Beaumont; *Treasurer,* Sidney P. Phillips; *Registrar,* Sir Raymond Crawfurd; *Harveian Librarian,* Arnold Chaplin; *Assistant Registrar,* C. E. Newman.

Dr. S. V. Sewell of Melbourne attended as a distinguished guest.

The Baly Gold Medal was awarded, on the recommendation of the Council, to Professor E. L. Kennaway, F.R.S., for his biochemical investigations which have led to the identification of a group of substances provoking malignant growth of tissues, and having significant relations in structure to certain hormones and vitamins.

Sir Edward Mellanby, F.R.S., was appointed Harveian Orator for 1938.

The Murchison Scholarship was awarded (by the University of Edinburgh) to James Innes, M.B., Ch.B.

The following were appointed representatives of the College: Sir Humphry Rolleston on the Executive Committee of the Imperial Cancer Research Fund; Dr. Edwin Bramwell on the Council of the King's College, Newcastle; Lieut.-Colonel Hugh Stott at the celebration of the fiftieth anniversary of the foundation of the University of Allahabad, November 16, 1937; Professor F. R. Fraser and Colonel A. H. Proctor, Dean of the British Postgraduate Medical School, at the International Congress for Medical Postgraduate Study, Berlin, August 21 to 24; Dr. W. S. C. Copeman at the centenary of the Royal Medical Society of Budapest, October 6 to 8; and Lord Horder, its President, at the International Cremation Congress, London, September 24 to October 2.

Sir Arthur Hurst will deliver the Harveian Oration on October 18 at 4 p.m.

The following candidates, having satisfied the Censors' Board, were admitted Members of the College:

S. Adler, M.B.Leeds, N. S. Alcock, M.B.Ed., D. S. Bateman, B.M., W. Brander, M.D.Aberd., Beatrice A. Butterworth, L.R.C.P., E. M. Buzzard, B.M., J. B. Cable, M.D. New Zealand, L. I. M. Castleden, M.D.Lond., M. C. Chapman, B.M., E. M. Darmady, B.Chir., P. C. Dhanda, M.B.Punjab, D. Diamond, L.R.C.P., P. G. Dowling, M.B.Melb., M. Erfan, M.D.Cairo, Doreen P. Firmin, M.B.Camb., W. H. Gabb, M.B.Camb., A. R. Gilchrist, M.D.Ed., Y. H. Guinena, M.D.Cairo, C. Hardwick, M.B.Camb., F. D. Hart, M.B.Ed., H. T. Howat, M.B.St. Andrews, M. Hynes, M.B.Camb., W. H. Kauntze, M.D.Victoria, W. A. S. Lamborn, L.R.C.P., L. J. M. Laurent, M.B.Lond., D. Levine, L.R.C.P., C. A. Lillicrap, M.B.Lond., L. F. Loutit, B.M., F. McLagan, M.B.St. Andrews, W. M. Macleod, M.B.Lond., P. T. Madhavi Amma, M.B.Madras, A. Nelson-Jones, M.D.Lond., A. Nimalasuria, L.R.C.P., B. P. Niyogi, M.B.Calcutta, I. R. Owen, L.R.C.P., J. F. Paterson, M.B.Camb., E. E. Pochin, M.B.Camb., J. D. Ramsay, M.B.Glasg., W. R. Russell, M.D.Ed., J. C. Saldanha, M.B.Lond., O. A. Savage, L.R.C.P., J. E. Sewell, M.D.Melbourne, S. C. Shore, L.R.C.P., T. Simpson, M.B.Leeds, A. J. M. Sinclair, M.D.Melbourne, D. W. G. Smith, M.B.Ed., W. McL. Smithers, M.D.Melbourne, B. Thorne Thorne, M.B.Camb., G. L. B. Thurston, L.R.C.P., W. R. Trotter, B.M., J. W. A. Turner, B.M., R. F. West, M.B.Adelaide, N. Whittaker, L.R.C.P.

Licences and Diplomas

Licences to practise were granted to 206 candidates (including 24 women), whose names are published in the report of the meeting of the Royal College of Surgeons of England in this issue, as are the names of the recipients of the Diplomas in Tropical Medicine and Hygiene (21), Ophthalmic Medicine and Surgery (27), and Medical Radiology (2). Diplomas in Public Health (9), Psychological Medicine (19), and Laryngology and Otology (6) were granted to the successful candidates whose names were published in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of July 17 (p. 143). In the list of the successful candidates for the Diploma in Psychological Medicine the name of J. B. Gillen was misspelt.

The following diplomas were also conferred, jointly with the Royal College of Surgeons of England:

DIPLOMA IN ANAESTHETICS.—M. C. Ganguli, R. E. Pleasance, A. F. Potter, W. B. Primrose, W. Sankey, G. E. P. Meldon, H. D. Merrington, C. D. Banes, R. P. Booth, Elva M. Chivers, R. T. V. Clarke, R. W. Cope, H. Curtis, G. Dru Drury, A. C. Fraser, A. H. Galley, J. L. Hopkins, E. Landau, I. N. Lewis, H. J. V. Morton, A. H. Musgrove, J. A. V. Nicoll, W. Niven, Angela M. S. A. Ofenheim, G. S. W. Organe, F. H. Pratt, A. C. R. Rankin, O. N. Ransford, J. R. Ritchie, Major J. M. Savege, R.A.M.C., Major H. R. Sheppard, R.A.M.C., J. T. Turner, R. C. Walch, Doris E. C. Walker.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At the quarterly meeting of the Council, held in the College House, 58, Queen Anne Street, W., on July 24, Sir Ewen Maclean was re-elected president; Professor R. W. Johnstone and Professor Miles H. Phillips were elected vice-presidents; Mr. Eardley L. Holland, honorary treasurer; Sir Comyns Berkeley, honorary appeal treasurer; Professor W. Fletcher Shaw, honorary secretary; Mr. Frederick Roques, honorary librarian.

The following were admitted to the Fellowship:

Sir Mangaldas V. Mehta, Bombay, Doris C. Gordon, Stratford, New Zealand (*in absentia*), S. Langevin, Montreal (*in absentia*), J. A. Hopkins, Melbourne (*in absentia*).

The following were admitted to the Membership:

A. L. Gilbey, Portsmouth (*in absentia*), J. R. McArthur, Toronto W. L. Maccormac (London), W. J. C. Morris, Ayr, D. C. Racker, Manchester, S. W. Wright, Newcastle-under-Lyme.

The following were elected to the Membership:

M. C. Albuquerque, Bangalore, E. Bailache, Melbourne, S. C. Bose, Calcutta, Marjorie R. E. Boyd, Dublin, F. J. Burke, Liver-

pool, H. Callagher, Melbourne, Isabella D. Cameron, London, H. Canwarden, London, Mrs. D. J. P. Dadabhoy, Bombay, J. P. Dutt, Calcutta, Edith Ghosh, Calcutta, V. B. Gokhale, Belgaum, H. F. P. Grafton, Hamilton, Canada, C. J. K. Hamilton, Liverpool, M. R. W. Hart, Madras, A. F. Hollinrake, Hamilton, Canada, M. Homji, Bombay, J. Howkins, London, J. G. H. Ince, London, Mary John, Inda, J. W. Johnstone, Korumburra, Australia, R. A. Logan, Nagpur, P. Lukose, Travancore, Anna P. Martin, L. de Menezies, Nagpur, E. A. Menon, Waltair, India, D. N. Mitra, Bengal, Mrs. Monohan, Madras, Una Morton, Agra, B. Mukherjee, Calcutta, H. Murray, Calcutta, A. N. Palit, Bihar, N. A. Purandhare, Bombay, P. W. S. Riley, New Zealand, A. Sarkar, Patna, M. N. Sarkar, Calcutta, G. A. Simpson, Sernia, Canada, B. H. Singh, Bengal, A. B. Stenhouse, London, R. K. K. Tampan, Edgmore, India, P. Venkatagri, Madras, Margaret Venters, Manchester, R. J. Wotherspoon, Glasgow.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—P. A. Dixon, O. I. Green, C. C. B. Guest, B. A. Hoogewerf, G. Howell, E. S. Reed, O. Rochlin.

MEDICINE.—I. W. Claiman, G. K. Coombes, P. H. Hay-Heddle, K. J. Higham, B. A. Hoogewerf, J. Meynell, J. N. Roberts.

FORENSIC MEDICINE.—I. W. Claiman, P. H. Hay-Heddle, K. J. Higham, B. A. Hoogewerf, J. Meynell, J. N. Roberts.

MIDWIFERY.—M. G. Braham, O. G. Gilmore, L. Gottlieb, K. J. Higham, G. S. Parker, E. F. G. Stewart, C. Webb.

The diploma of the Society has been granted to J. Meynell and J. N. Roberts.

CONJOINT BOARD IN SCOTLAND

The following candidates have been approved at the Final Professional Examination for the Scottish Triple Qualification:

F. E. Adams, E. Adler, G. R. Altmann, J. Anderson, M. Berg, D. Blos, L. A. P. Cantin, W. Carsten, J. P. Chapin, Koh Chiang Chee, L. G. Cruickshank, A. Dzialoszynski, H. Felsen, P. Fleischmann, E. Friedmann, A. M. Gall, D. L. Goldman, D. L. C. Greig, I. M. Greenberger, A. Hirsch, Paula Heimann, W. I. S. Hudleston, F. P. Hudson, A. T. H. A. Kader, A. M. Kallen, Alfaretta F. Keith, J. J. Kristal, R. R. Levine, H. G. Liebmann, K. M. Little, B. Lipschitz, E. W. Lou-Hing, D. M. Macdonald, J. M. Mervis, Cecily C. Mitchell, J. R. Moffat, M. J. Munro, M. K. Naidu, Beryl A. Peters, E. Rachwalsky, H. L. Riner, W. A. Rock, R. W. Ross, M. Rubin, L. Schaffer, I. H. L. Shlefstein, S. Siegel, Charlotte B. Sommer, Betty Spier, F. B. Stephenson, W. H. Suffield, W. S. Thomson, S. P. Vosnides, E. Weltman.

The Services

DEATHS IN THE SERVICES

Lieut.-Colonel ERNEST GEORGE FFRENCH, R.A.M.C. (ret.), died suddenly on July 25, aged 60. He was born on November 5, 1876, and was educated at St. Bartholomew's Hospital and at Edinburgh University, where he graduated M.B., Ch.B. in 1898, subsequently taking the M.D. in 1906, the F.R.C.S.Ed. in 1909, and the M.R.C.P.Lond. in 1921. After filling the post of house-physician at the Edinburgh Royal Infirmary, he went out to South Africa to serve as a civil surgeon in the South African War in 1900. He took a permanent commission as lieutenant in the R.A.M.C. on May 28, 1901, became major after twelve years' service, and retired, with the rank of lieutenant-colonel, on August 20, 1920. He served in the South African War for two years, 1900–2, taking part in operations in Cape Colony, the Orange River Colony, and the Transvaal, including the action at Renoster Kop, and received the Queen's medal with five clasps. He also served throughout the war of 1914–18, when he was twice mentioned in dispatches. He commanded the Military Hospital at Rochester Row during the war, and served as a specialist in dermatology. Afterwards he acted for six years as chief assistant in the skin department at St. Bartholomew's, was physician in charge of the skin department at the London Temperance Hospital, and practised as a dermatologist and specialist in venereal diseases in Harley Street. He was with C. F. Marshall, author of a work on *Syphilis and Venereal Disease*. Since 1909 he had been a member of the British Medical Association. When visiting America two years ago he was appointed an associate professor at the New York Polyclinic and Postgraduate School.

Medical News

The address of the Central Midwives Board for England and Wales is now 23, Great Peter Street, Westminster, S.W.1: telephone number, Victoria 2410.

The Royal Society invites applications for two Foulerton Research Fellowships in Medicine, tenable at any hospital or medical school in the British Isles. Applications must be received by October 16, and candidates must be of British nationality and British parentage. The appointments will be for two years in the first instance, from January 1, 1938, and may be renewed annually up to a total of five years. The stipends will be £600 to £800 per annum, with superanuation benefits.

The lectures and discussions during the third International Medical Week in Switzerland, which will be held at Interlaken from August 29 to September 4, will relate largely to the problems of general biology, affections of the brain and nerves, and the metabolism of carbohydrates. Among the many topics to be considered are recent work in experimentally produced cancer, the results of treatment of intracranial tumours, hereditary factors in tuberculosis and syphilis, insulin therapy, diseases of the skeletal cartilage, and the importance of retinal tension. Excursions are planned to Schynige Platte, Berne, and the Jungfraujoch, while special arrangements are being made for participation in the William Tell festival, which falls due during this congress. The fee for membership is 10 Swiss francs, and further information will be supplied on application to the offices in Basle (27 Klosterberg) of the *Journal Suisse de Médicine*, under whose auspices this medical meeting is being organized.

The second European Congress of Structive (Plastic) Surgery will be held in London at the Royal Society of Medicine on October 6 and 7. Mr. T. Pomfret Kilner has been nominated as president and Drs. Sanvenero-Rosselli (Milan) and Dufourmentel (Paris) as vice-presidents. Sir Harold Gillies will be president of honour and Professor Cardenal of Madrid vice-president of honour. The subjects for discussion are: free skin grafts, nasal contour restoration, and mammaplasty procedures.

All German scientific medical associations and certain foreign associations interested in postgraduate courses for doctors are to be invited to attend a congress for postgraduate medical studies in Berlin from August 19 to 21. It is anticipated that an international committee on postgraduate studies will be appointed on this occasion.

The German Orthopaedic Congress will be held at Rostock from August 27 to 29. Further information can be obtained from the president, Dr. Scheel, Orthopädische Anstalt, Rostock.

We have just received the first number of the first volume of the *Journal of the Malaya Branch of the British Medical Association*, which is edited by Dr. G. V. Allen, in conjunction with Dr. R. B. Hawes, Mr. D. E. C. Mekie, and Dr. J. W. Scharff. This new journal is a workmanlike production, similar in format to the *Transactions of the Royal Society of Tropical Medicine and Hygiene*. We wish it every success. It will be issued quarterly, and can be obtained on application to the Advertising and Publicity Bureau, Ltd., 144, Robinson Road, Singapore, at an annual subscription of 3 dollars. The supplement of this journal includes a report of the Annual Meeting of the Malaya Branch for 1937, and a list of the members of the Branch.

In the *British Journal of Tuberculosis* for July are published all the papers read at the Empire Conference on the Care and After-Care of the Tuberculous held under the chairmanship of the Marquess of Willingdon last May. The transactions of this meeting will not be issued in any other form. Single copies of this issue are on sale at the special price of 4s. 3d., post free.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Secretary, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS should be addressed to the Advertisement Manager. Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House, Tavistock Square, W.C.1.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111.

The TELEGRAPHIC ADDRESSES are
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
SECRETARY, *Medisecra Westcent, London.*

The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh;* telephone: 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin;* telephone 62550 Dublin).

QUERIES AND ANSWERS

Splitting Finger-nails

Dr. H. STIVEN (Cairo) writes: I have been watching your correspondence columns on the subject of split nails, as I am a sufferer myself. I am a surgeon and use "wet" gloves with lysol, or monsol, or some such tar derivative for my hands after washing up. I have always two or three nails which consistently split, and nothing I try, such as letting them get long, olive oil, vaseline, etc., does any good. That it is not constitutional or due to lack of calcium or vitamins seems to be demonstrated by my toe-nails, which are in good condition. Another complication in my case which may be a factor is that fifteen years ago I was doing my own *x*-ray examinations, but since then I have completely stopped exposing my hands, as a result of a warning transient erythema, due to operating for a needle in knee-joint under the screen, when, as so often happens, it took longer than expected. I have tried using "dry" gloves at operations with no marked result.

Treatment of Rheumatoid Arthritis

A. W. S." wishes to know whether there is any special institution for the treatment of a female patient of moderate means with advanced rheumatoid arthritis.

Successive Miscarriages

Dr. A. W. BARCLAY WIGGINS (Sheffield) writes in reply to Dr. O. Sydenham (*Journal*, July 31, p. 252): I had a similar case of successive miscarriages in a patient of the anaemic, red-haired type; no pelvic abnormality was detected and her Wassermann reaction and the husband's were negative. She came to me early in the last pregnancy, and in spite of the negative Wassermann I gave her a full course of N.A.B. She was delivered of a healthy female child at the thirty-ninth week. The child is now 2 years old and appears normal. I may add that the husband had suffered from malaria while on military service in India.

Dr. A. W. PURDIE (Acton, W.3) writes: Perhaps Dr. O. Sydenham would be interested in Professor James Young's article "Habitual Abortion and Stillbirth Syndrome," which appeared in the *Journal* of May 8, 1937.

Agranulocytosis and Rheumatism

Dr. D. H. COLLINS, in reply to Mr. L. A. Riddell (*Journal*, July 24, p. 197), writes: A severe and chronic polymorphonuclear leucopenia (neutropenia) is a rare but not unknown concomitant of rheumatoid arthritis. It is usually associated with enlargement of the liver and spleen, and this combination of findings has received the name of "Felty's syndrome," but the associated arthritis appears to differ in no respect from rheumatoid arthritis. The neutropenia, although sometimes as low as 100 polymorphonuclear leucocytes per c.mm., does not appear to influence the prognosis and seems to occur irrespective of the treatment given, though of course amidopyrine and the sulphonamide preparations should be considered as possible aetiological factors. The neutropenia is difficult to influence by treatment, but one case recently observed showed some improvement as a result of treatment with massive doses of liver extracts. A fuller discussion of the matter is contained in an article in *Reports on the Chronic Rheumatic Diseases*, No. III, 1937. A pathological leucopenia is otherwise so rare in rheumatism that, if discovered, the case should be carefully reviewed for evidence of other disease.

LETTERS, NOTES, ETC.

An Exchange Scheme for Medical Students

Mr. A. D. LEIGH B.Sc., writes from Budapest: Thirty-three foreign students are gathered here in Budapest for the months of July and August. They are working at the different clinics attached to the Pázmány Péter Tudomány-Egyetem (University), and represent seven countries. Sixteen students from Poland, both men and women, comprise the largest group; next come five Bulgarians, then four Letts, three Finns, two Frenchmen, two Austrians, and lastly the writer, who is the sole English representative. All are exchange students, an equal number of Hungarian medical students having travelled to the various countries concerned, where they also will work in hospitals and clinics. The Hungarian Medical Students Association is responsible for this scheme, and with very willing co-operation from the professors and their staffs in the clinics is making it a very great success. The foreign student is allowed to choose the clinic in which he would work, be it gynaecology, dermatology, internal medicine, surgery, etc. The two great clinics which form part of the University have an abundant supply of interesting material, and there are not more than two or three students in each section of the clinic. The Hungarians speak German, French, and English, so that there is no language difficulty, and a foreign student receives what is almost individual attention. A programme of visits to the various hospitals and clinics here has been arranged, and already the party has visited the Central Ambulance Station. To this station comes news of every accident in Budapest, and from it goes an ambulance carrying a student to the scene of the accident. The foreign students are to share in this work, and are looking forward to a spell of duty on the station. A display of films on first aid and life-saving was shown to the party, which also visited every section of the station. The balneological virtues of Budapest are well known, and a visit to the various medicinal baths is also to take place.

A Solecism

Dr. GEORGE S. BANKS writes from Aberdeen: Can nothing be done in the interests of orthology to discourage the continued use by some writers of the word "rheumatic" as qualifying clinics, committees, councils, etc.? The personnel of these may be rheumatic, no doubt many are in part explanation of their enthusiasm for the cause. Why not, on the same analogy, an Empire Anaemic Council, a Measly Commission, a Scabious Clinic, a Tuberculous Medical Officer, a Cancerous Research Committee?

Stammering

Dr. WM. RUSHTON PARKER writes: Stammering is a mere functional complaint like blushing and can be a grave handicap. When Lord Lister, in 1877, left Edinburgh for London I went to hear his introductory address, and I noticed at once that he was a stammerer, for I had been one myself in earlier days and understood the tricks; but I doubt if anybody else noticed it until he stumbled dreadfully over a difficult word, blushed crimson, and the latter half of the lecture became rather painful to listen to. Over twenty years ago I visited the Manchester Stammering School, to which every stammerer from the elementary schools is sent. I found thirteen boys and one girl being cured, and was told that over 90 per cent. of stammerers were boys and under 10 per cent. girls. Cure usually took three months, very few relapses occurred, and second relapses hardly ever. Considering the tremendous handicap which stammering becomes in after-life, I wonder why other large towns do not follow Manchester's example.